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ABSTRACT

Described are the philosophy, organization, and curriculum of programs functioning under the Bureau for the Education of the Physically Handicapped (BEPH), which administers educational programs for approximately 10,000 physically handicapped children in New York City. Following are explanation of the general principles guiding the development of programs, an overview of programs offered by BEPH is given and admission and transfer procedures clarified. Examined in greater detail are the health conservation classes, focusing upon classes for the severely orthopedically handicapped and brain-injured. Such aspects as screening, physical plant, curriculum and activities, materials, and services are summarized. Also detailed is the home instruction program. Following a general discussion of topics basic to curriculum planning for the physically handicapped, curriculum adaptations for specific subject areas are presented. Objectives, services, and roles of parent, teacher, and school in the guidance program are reviewed. Final chapters define some common physical disabilities, examine trends in regular and special education, and outline innovations especially relevant to education of the physically handicapped in New York City. (KW)

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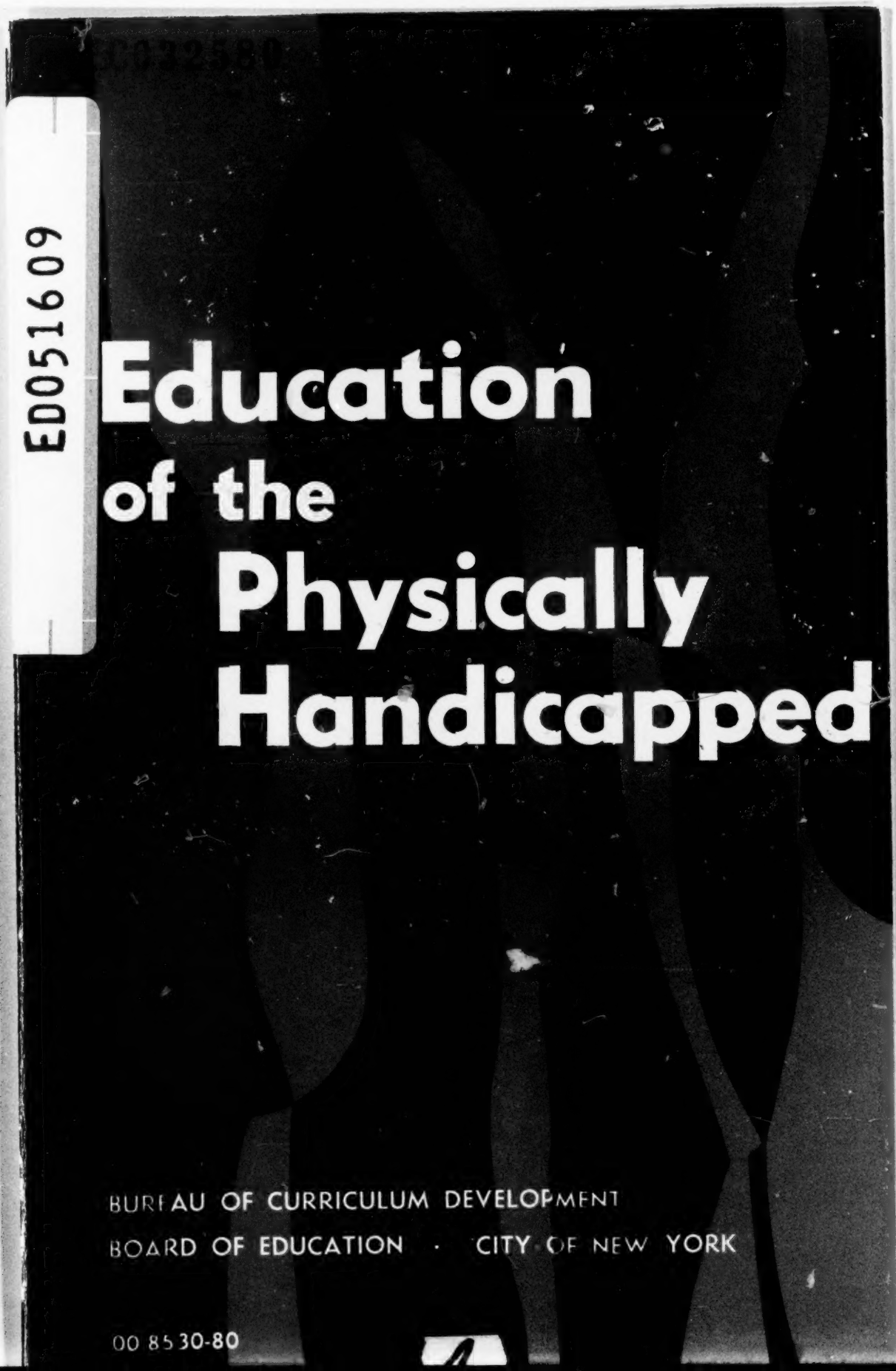

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FOREWORD

Approximately 10,000 physically handicapped children are enrolled each year in a variety of programs administered by the Bureau for the Education of the Physically Handicapped.

A major aim is to accommodate every child, regardless of the seriousness of his physical impairment, in an educational setting from which he can derive the most profit. It is also intended that no child be placed in a setting which is excessively protective and does not permit the fullest use of the child's physical abilities. Over a period of years, facilities have been provided and procedures have evolved to help both of these intentions come closer to reality.

This bulletin describes the philosophy, organization, and curriculum of all programs functioning under the Bureau for the Education of the Physically Handicapped, a division of the Office of Special Education and Pupil Personnel Services. It extends and brings up to date the descriptions of programs for physically handicapped children found in an earlier curriculum bulletin, *Helping the Physically Limited Child,* which was a pioneering effort in this field.

Education of the Physically Handicapped Child should prove useful as:

- a guide for teachers working with handicapped children in regular or special classes
- a reference for supervisors and administrators
- a source of information for other concerned school personnel and professional workers in various public or private agencies
- a reference work in teacher training

Changes in urban living, medical science, and societal attitudes toward the handicapped affect the type of population served in special classes. Programs for the physically handicapped child require variety, flexibility, and imagination to meet present needs and to anticipate future trends.

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SEELIG LESTER
Deputy Superintendent of Schools

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Code

BEPH — Bureau for the Education of the Physically Handicapped

BCG — Bureau of Child Guidance

DVR — Division of Vocational Rehabilitation

BCRMD — Bureau for Children with Retarded Mental Development

1 Guiding Principles

The goal of educational placement for all children regardless of exceptionality comes closer to fulfillment with each passing year. Large numbers of children who once had been exempted from formal schooling are now served in public facilities offering special programs that respond to their individual strengths and weaknesses. Throughout the nation, one is now likely to hear school officials say to parents, "Yes, we do have a program that can meet your child's special needs."

In addition to the quantitative growth of pecial education facilities, the last few decades have been characterized by a qualitative growth. Parents and teachers of special education have pressed for improved accommodations, equipment, materials, and methodology, and although total fulfillment has not been achieved, they can be proud of their accomplishments. Pressures for improvement have not abated. In the coming decades, we may expect mnovations that reflect current and future social and scientific advances.

Adherence to a set of guiding principles has helped to achieve some of the educational goals for the physically handicapped children in New York City. The following principles hold promise for physically handicapped children in the coming decades:

- Education must be dynamic if it is to meet the challenges presented by the exceptional child in a changing society
- Special curricula periodically reviewed and revised best serve the handicapped child
- The fundamental needs of the child with a physical handicap are the same as those of any other child, except in the area of his special limitation
- Disabled children are entitled to a physical plant with accommodations and equipment that enable them to attend classes in school and to achieve at their highest potential

- Teachers of handicapped children should be carefully selected and specially trained
- Careful consideration must be given to ways of maintaining continuity in educational services in order to minimize or eliminate learning gaps occasioned by frequent or prolonged illness
- A sound educational approach should stress abilities rather than disabilities as a foundation for further growth
- Cooperation with individuals and agencies whose efforts offer support to disabled persons should be encouraged
- The needs and objectives of special education should be publicized in order to secure the support of educators and the general public
- Physically handicapped children should be moved into a less sheltered educational setting as soon as there is an indication of probable success
- A broad educational approach which considers the academic, social, emotional, physical, and vocational needs of children should be the basis for formulating the educational program.

SPECIAL EDUCATION EMERGES

The development of professional social work and the mental hygiene movement has served to shift the concept of child care from unorganized philanthropic protectiveness to systematic scientific endeavor. With the mental testing program, at the turn of the twentieth century, came the recognition of differences in children, and with it, special education.

Special classes were organized chiefly as a method of protecting children with limitations from the results of competing in ordinary classrooms against overwhelming odds. The establishment of these classes gave evidence of the growing concern for children as children—in the school, at home, and in the community. However, little provision was made for services for the child beyond that of placement in special classes. Narrow as the objective was, it was a step in the right direction. People no longer only *thought* about children with problems; they were now *doing* something.

During the 1920's, child guidance clinics were organized. Their functions included mental testing and the exploration of the relationship between children's behavior and their performance in school.

Behavior, which hitherto had been considered a thing apart — a child was good or bad, courteous or impudent — was now recognized as

due in some measure to the child's reaction to affection or rejection, approval or disapproval, harsh discipline or overindulgence, friendliness, or hostility.

Arnold Gesell's studies in the 30's, and his series of behavior profiles identifying and interpreting the changing development status of children at the various stages of growth further contributed to the understanding of the child. Gesell's profiles of children demonstrated that the physical, mental, emotional, social, and spiritual aspects are all inseparably fused. The concept of the "whole child" was thus developed.

This concept pointed up the need to work *with the child and with the family*. Experience and studies in child guidance clinics showed that the child could not be considered apart from his home and community. With these developments, came recognition of the need for collaboration among all agencies interested in the health and guidance of the child. The obligation to share responsibilities in the interest of the health and welfare of the child was now recognized. Significant steps in this period were the establishment of a psychiatric service in a pediatric clinic and the introduction of courses in child psychiatry by schools of social work. Educators called upon child guidance clinics for help with children with problems.

During World War II and after, advances in the treatment of soldiers who became physically handicapped in service pointed the way for effective living and economic usefulness. Projects in rehabilitation that began as purely humanitarian ventures proved their value in dollars and cents. Legislation on the national and state levels to subsidize local programs reflected an awareness of the dividends which investment in the education of the handicapped brings.

New York City was one of the first cities in this country to establish special educational programs for physically handicapped children. At the turn of the century, no special classes for physically handicapped children existed. In New York City a few hundred crippled children were educated by philanthropic institutions. In 1904, a class for children with nonpulmonary tuberculosis was started at Sea Breeze Hospital. This was the first hospital class in the United States to which a public school teacher was assigned. By 1909, there were classes or day camps limited to children who were contact cases, pre-tuberculosis children, and children with healed lesions. An outgrowth of this work was the establishment of classes in other hospital and convalescent homes for children with different types of disabilities. The following chronology depicts some outstanding events in the development of education for the physically handicapped in New York City.

1904 — Board of Education authorized the appointment of the first teachers of crippled children and assumed the responsibility for the instructional program in two private schools.

1910 — The first classes for the care of anemic, underweight, malnourished, and nervous children and those thought to be predisposed to tuberculosis were formed. These classes were called open-air classes.

1913 — The first teachers were assigned to teach crippled, homebound children.

1917 — The first class for crippled children was started.

1920 — Classes for cardiopathic children were formed.

1941 — All cardiac and open air classes were renamed Health Improvement Classes.

1946— The first pilot class for the education of twelve severely handicapped, cerebral palsied children was organized at the Lower East Side Health Center. The Association for the Aid of Crippled Children, the New York Service for the Orthopedically Handicapped, the Department of Health, and the Board of Education cooperated in this project.

1948 — In November, 1948 the Board of Education opened two classes for cerebral palsied children in PS 135M. The Department of Health cooperated in this project.

1949 — The High School of the Air for Home Instruction began a series of regular radio broadcasts to supplement the work of the teacher of homebound children. This program is still in existence.

1951 — "The Living Blackboard," a series of television programs conceived specifically for homebound children, was telecast.

1953 — All former Health Improvement classes and Orthopedic classes were renamed Health Conservation Classes.

1955 — The first class for brain-injured pupils was started at PS 85X.

1959 — Two classes for high-school-level physically handicapped children were opened in Brooklyn, one in Sheepshead Bay HS and one at Eli Whitney Vocational HS.

1964 — Experimental class for multiply handicapped pupils was started at PS 219K.

1966 — Experimental classes for severely handicapped pupils unable to compete in large high schools opened at Queens United Cerebral Palsy Center and Brownsville Recreation Center.

1967 — The program for brain-injured children was expanded to include students of high school age in a special project involving occupational exploration; classes are affiliated with Julia Richman HS.

THE MEANING OF HANDICAPPED

The term *handicapped* has been defined in various ways. According to the New York State Education law, "a handicapped child is one who, because of mental, physical, or emotional reasons, cannot be educated in regular classes but can benefit by special services and programs to include, but not limited to, transportation, the payment of tuition to boards of cooperative educational services and public school districts, home teaching, special classes, special teachers and resource rooms."[1]

From the medical point of view, the child may be considered physically handicapped if his physical condition prevents full participation in childhood activities of a social, recreational, educational, and vocational nature. Included in this category are children with visual defects, hearing deficiency, speech difficulties, locomotor disabilities with their associated handicaps, and those with general health disturbances, such as malnutrition, cardiac disease, diabetes, allergy and asthma, epilepsy, endocrine disorders, etc.

From the mental hygiene point of view, a person with physical impairments is handicapped only to the degree that he cannot cope with the problems which his condition presents. Two individuals with the same physical limitation may react in entirely different ways; one may become bitter and unproductive; another, aware of and accepting his limitations, may set his goals within the realm of realization.

The educational goals for children with physical limitations are the same as those for all children — to help them achieve maximum growth and development, to help them lead exploratory, creative, and happy lives as children and to help them attain civic and economic competency as adults. Consequently, the same principles of guidance prevail and the same educational opportunities should be extended to physically limited

[1] Chapter 786, Laws of 1967, section 4401, subdivision 2.

children as to all others. The chief difference lies in some of the *means* through which educational and vocational opportunities are made available to the physically limited person.

THE PROGRAM

To provide these children with the opportunities all children need, there must be an effective, comprehensive school program consisting of:

Well-qualified teachers and supervisors

A setting in which opportunities for optimum healthful physical, emotional, and social living are provided

Provision for the detection, diagnosis, treatment, and follow-up of children with health disturbances, physical impairments, and associated mental handicaps

Appropriate school placement and the institution of special measures and services based on special needs

A plan of school-home-community cooperation and participation organized around the child's abilities and limitations.

SCHOOL, HOME, COMMUNITY

Parents of physically limited children must be helped to understand and to accept the child's condition. Their participation and cooperation in the habilitative and rehabilitative processes often spell the difference between success and failure of a program.

Since the needs of the physically limited child are many and varied—physical, emotional, spiritual, educational, social, occupational — the aid of others in the school and community must be enlisted. Integration of services of all those concerned with the child is especially important. This requires teamwork at its highest operational level in which parent, educator, school health personnel, family or clinic physician, and other members of health and welfare agencies pool their respective knowledges and skills so that the child's total needs are understood and his adjustment effected. Such an interdisciplinary approach is not easily accomplished. It poses complex and difficult problems, but no other approach consonant with the philosophy of a democratic society yields such results or holds such promise.

AN OPTIMISTIC OUTLOOK

Fundamental to the planning of educational programs for the children of the coming decades is the belief that the future holds unlimited promise for the material and spiritual welfare of mankind. This promise can be brought to fruition only by people of vision who have a broad awareness of what is happening in the world and who translate that awareness into action.

The schools in America should make available to all children and youth those experiences which stimulate each student to develop his potential to its fullest, and to meet his intellectual, moral, spiritual, esthetic, vocational, physical, and social needs as an individual, an American citizen, and a member of the world community.

2 Overview of Programs

The Office of Special Education and Pupil Personnel Services through several of its bureaus supervises the education of all physically limited children.

The Bureau for the Education of the Physically Handicapped (BEPH), which is one of the largest divisions, directs the educational programs for children who require placement in a health conservation class because of a physical disability other than visual or acoustical, or who require placement on home instruction for physical or emotional reasons.

Children in hospital and convalescent home classes are served by the "400" schools. In terms of categories of illnesses, these children constitute a population similar to those served by BEPH. Therefore, much of the material in this bulletin is applicable to them.

It is the aim of this chapter to present a brief overview of the programs offered by BEPH and to clarify procedures regarding admissions and transfers. Because of the close relationship between BEPH and the "400" schools, admission and transfer procedures for children in hospitals and convalescent homes are also included.

The Bureau for Children with Retarded Mental Development (BCRMD) is in charge of the program for doubly handicapped children. A doubly handicapped child, as the term is used in New York City, is a child with a physical disability requiring special educational services *and* with mental retardation below the slow learner level. Admission to these classes is through joint screening by the Department of Health, the Bureau of Child Guidance (BCG) (to certify mental retardation), and the Bureau for Children with Retarded Mental Development.

The Bureau for the Education of the Visually Handicapped and the Bureau of Speech Improvement direct the programs for children with visual and speech defects, respectively. Schools for the deaf and the language impaired offer services for those needing them.

THE MULTIPLY HANDICAPPED

Multiply handicapped children often present particularly perplexing problems in educational placement. One child may be mentally retarded, emotionally disturbed, and hard-of-hearing; another may be orthopedically disabled, visually limited, and aphasic.

At present, a committee determines which facility and which bureau can best serve the multiply handicapped child. Other bureaus then provide auxiliary services. The committee is composed of a representative from the Department of Health and representatives from the following bureaus of the Board of Education:

Educational and Vocational Guidance
Health and Physical Education
Education of Socially Maladjusted Children
Attendance
Child Guidance
Children with Retarded Mental Development
Speech Improvement
Education of the Visually Handicapped
Education of the Physically Handicapped
Hearing-Handicapped Children

After parents are interviewed, the child examined by various specialists, and pertinent data gathered by a coordinator, the committee decides on the proper placement for the child.

In 1964, an experimental class for multiply handicapped children was started under the jurisdiction of BEPH. The aim was to offer an alternate placement for those children whose problems were so complex as to defy a decision regarding the area of greatest need. It was also felt that a child placed in this special class could be closely observed over a period of time, his strengths and weaknesses carefully noted, and a more informed decision as to educational placement made on the basis of familiarity with the child.

Another approach by the Board of Education to the placement of the multiply handicapped child involves the establishment of the Center for Multiple-Handicapped Children, specifically designed and staffed to offer a comprehensive program. The success of this project will furnish answers to a challenging area in special education.

BUREAU FOR THE EDUCATION OF THE PHYSICALLY HANDICAPPED

The following shows the basic plan of organization of BEPH:[1]

Health Conservation Classes

Lowered Vitality
HC—Bus
HC 20 (Orthopedic units)
HC 30 (Brain-injured children)

Home Instruction

Physically Handicapped
Emotionally Disturbed
Cyesis (Pregnancy)

Note: Door-to-door transportation for children in health conservation classes and for physically limited children in regular classes is arranged by BEPH after proper medical review. Children are assigned to busses specifically designated for physically handicapped children. Parents are notified by the school to have the pupil ready for the bus at the time and date given by the Bureau of Pupil Transportation of the Board of Education. The New York City Board of Education, Office of the Superintendent of Schools, outlines procedures for obtaining transportation for physically limited children in regular classes in its Special Circular No. 14, 1963-64, dated Sept. 30, 1963, and entitled *Bus Transportation for Children in Regular Classes.*

Health Conservation Classes

LOWERED VITALITY[2]

Lowered vitality classes serve children in attendance at an elementary school within easy walking distance of the child's home. The classes are

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[1] See pages 152, 153.

[2] For more complete details see *Manual of Procedures: Health Services for School Children in New York City,* 4th ed. (New York City: Department of Health, 1965). Note that this Department of Health manual does not refer to "lowered vitality" classes. Instead, the expression "health conservation classes without bus transportation" is used.

usually located in schools or neighborhoods where there is a large concentration of children suffering from such ailments as malnutrition, below par condition resulting from lack of rest, convalescent status after a serious illness, allergies, asthma, mild cardiac deficiency, and mild orthopedic disability. An attempt is made to locate these classes on the lower floors of school buildings, but some amount of stair climbing is usually necessary. An optimum class size of fifteen, regular rest periods, and a program tailored to the physical, academic, and emotional needs of the individual child often produce beneficial, long-lasting results.

Admission Procedure

Recommendation for admission is made by the school physician. Duration of placement varies, but placement for less than a month is generally undesirable. Recommendation from an outside source must be approved by the school physician and BEPH.

Transfer Procedure

Children are transferred from the Health Conservation class to the regular class or to home instruction on the school physician's recommendation. Should a recommendation for removal from the health conservation class be received from a source outside the school (e.g., the clinic physician, family physician, or the parent), then the school physician must confirm the recommendation.

All recommendations that the school physician approves should be effected by the school principal as soon as possible. If facilities are not available, or if there is any question regarding the method of effecting the recommendations, the school principal or the school physician may arrange for a conference to discuss available alternatives. The principal, school physician, nurse, and teacher may participate. The supervising school physician, the supervising nurse, or the supervisor of BEPH may be invited to the conference for consultation.

The principal obtains approval from BEPH for all children being admitted to or transferred from health conservation classes.

HEALTH CONSERVATION—BUS

These classes, serving the same function as the lowered vitality classes, also accommodate more seriously disabled children who are not within walking distance of the school. They are set up in clusters of at least two, and are nearly always located on street-level floors to minimize walking and stair climbing. Children with 1) orthopedic disabilities, 2) cardiac

deficiencies and rheumatic fever, and 3) various chronic ailments constitute the general population. The classes are organized on the elementary, intermediate, or junior and senior high school levels.

Admission Procedure

For children with orthopedic involvements, the medical report entitled "Orthopedic Report and Recommendation" (Form 012S) is initiated by a treatment agency or private physician. For children with cardiac involvement, the medical report form entitled "Rheumatic Fever and Cardiac Conditions: Report and Recommendations" (Form C12S) is submitted by a treatment agency or private physician. Both the 012S and the C12S forms are obtainable from school nurses or BEPH.

1. Orthopedic Conditions

A copy of Form 012S is retained by the treatment agency and the other copies are mailed to the Bureau for Handicapped Children, Department of Health, 350 Broadway, New York, N. Y. 10013. The consulting orthopedist in the Bureau for Handicapped Children reviews the 012S forms and approves or disapproves the recommendations for special educational adjustment. One copy of the 012S form is retained and the other is routed as follows:

When no special placement is involved: The 012S is sent directly to the school and the school physician reviews it.

When special educational placement or change of placement is approved: The 012S is sent to BEPH, where appropriate assignment is effected. Then Form 012S and an instruction for transfer (PH1 form of the Board of Education) are sent to the principal of the school in which the child is currently registered. The principal of the receiving school sends the 012S to the nurse, who makes the necessary transcription onto the 103S and 104S and holds them for review by the school physician.

If the school physician disagrees with the recommendation of the consultant orthopedist, he consults his supervising physician regarding further contact with the treatment agency and/or the Bureau for Handicapped Children, Department of Health.

2. Cardiac Conditions

The C12S is issued to the private physician or treatment agency which fills in the required information, retains a copy for its file, and transmits two copies to the school medical room.

The school physician approves or disapproves the recommendation for educational placement and schedules necessary school health follow-up. One copy is either forwarded to BEPH (for special class placement or change of placement) or retained with the child's 103S card. If the school physician is not scheduled to visit the school within a week, the principal should immediately contact the supervising physician to avoid delay in placement.

3. Chronic and Other Conditions

When the recommendation originates with the school physician (after possible conferences with the parent, principal, teacher, and/or nurse), he notes findings for medical care, a date for follow-up examination, and the expected length of time the pupil will need special educational adjustment.

The classroom teacher, guidance counselor, or school nurse transmits the school physician's recommendations to the parent, and the school informs BEPH. If the pupil's needs cannot be met in his present school, BEPH transfers the child to another school where facilities are more suitable.

When the request for admission to a health conservation class originates from a source other than the school physician, it should be forwarded to the principal of the pupil's last school. The principal transmits the data to the school nurse for the school physician's attention and action. The latter verifies the facts, approves or disapproves the request, and notifies the principal in writing. The principal then notifies BEPH where authorization and placement are effected.

Transfer Procedure

Transfers from the health conservation—bus classes are effected in essentially the same manner as admissions.

HC 20 CLASSES—UNITS FOR SEVERELY HANDICAPPED

Many children with severe orthopedic and neuromuscular handicaps need special accommodations since they cannot attend a regular health conservation—bus class. They face the alternative of home instruction unless a highly specialized school facility is provided. The HC 20 classes meet this need.

In general, the special requirements for these children are met through assessing all their physical and educational needs, designing the physical

Hydraulic-lift bus

plant of the school to enable the children to function and move about more freely, making appropriate curriculum adaptations, employing special teaching techniques, and easing transportation difficulties through the use of hydraulic lift busses. In addition, a staff of specialists acts as a team to administer therapies and evaluate pupil progress. There is at least one HC 20 unit in each borough serving children from kindergarten through eighth grade. Normal or potentially normal intelligence is ordinarily required for admission. Overall progress in this program is often substantial enough to permit transfer to a health conservation—bus class or even a regular class.

Admission Procedure

The Orthopedic Form 012S is given by the nurse to a parent who presents it to the treatment agency at the time the child is examined. (The social service departments of most of the major hospitals in New York City are supplied with 012S forms and are familiar with referral procedures.) The form is completed by a physician and mailed to the Bureau for Handicapped Children, Department of Health, 350 Broadway, New York, N. Y. 10013.

The recommendations are reviewed by a consultant orthopedist at the Department of Health and forwarded to BEPH. If admission to an HC 20 class has been recommended, the 012S form is sent to the appropriate HC 20 unit where the child's final eligibility for admission is determined by members of the staff. Screening procedure at the school often entails three days of evaluation by teachers, therapists, social workers, psychologists, and physicians.

Transfer Procedure

Periodic reevaluation by the unit team and consultation with the treatment agency often result in a recommendation for a change in educational placement. The medical director of the unit or the treatment agency may initiate the transfer using the 012S form as outlined in the admission procedure.

HC 30—CLASSES FOR BRAIN-INJURED CHILDREN

The New York City program for brain-injured children was established to deal with a specific category of neurologic dysfunction, popularly designated as the brain-injured syndrome. These children frequently demonstrate, in varying degrees and combinations: hyperactivity, restlessness, distractibility, impulsivity, mixed cerebral dominance, poor visual motor perception, defects in fine coordination, speech difficulties, scatter in intellectual functioning with an unusual discrepancy between verbal and performance skills, an abnormal electroencephalogram, and/or other diagnostically significant characteristics.

Classes are located in selected schools in all boroughs, and an attempt is made to have clusters of at least two classes. Recently, classes on the secondary school level have been established. Bus transportation is provided where necessary.

Admission Procedure

Referrals may be made to BEPH by school social workers, guidance counselors, physicians, or professional personnel from health agencies. Supportive data should include psychological, psychiatric, pediatric, and neurological reports.

In the evaluation for placement, the child and his prior record are carefully examined by a screening team which includes medical, psychological, and educational specialists. If a child is accepted for the program, a regular school-to-school transfer is initiated by BEPH.

Transfer Procedure

Upon request of supervisors, teachers, parents, personnel in treatment agencies, or private physicians, children may be reevaluated by the screening team for transfer from the program. Reasons for transfer vary, but essentially they reflect either an inability to profit from the program or sufficient progress to warrant placement in a less sheltered environment, such as a health conservation class or a regular class.

Home Instruction

PHYSICALLY HANDICAPPED CHILDREN

Physically handicapped children constitute the majority of the enrollment in the home instruction section of BEPH. Home instruction is offered for grades 1-12. An adult chaperon is required when the child is taught at home.

Referral Criteria

Indications for home instruction include:

— convalescence lasting more than six weeks requiring bed rest or restricted activities at home

— conditions necessitating three or more clinic visits per week

— severe chronic and/or progressive diseases which make locomotion impracticable

— minimum intelligence in the educable retarded range.

Admission Procedure

The admission procedure for all physically handicapped children in the home instruction program is essentially the same as the procedure outlined for the Health Conservation-Bus classes.

Transfer Procedure

With the exception of chronic disabilities, the transfer procedure is the same as the admission procedure. With chronic disabilities, BEPH, usually through the teacher of homebound children, supplies the parent with the Bureau Form M7. The form is filled out by the private physician or treatment agency and forwarded to the "last school attended" for review by the school doctor who then forwards it to BEPH where notice of transfer is made to parent and school.

EMOTIONALLY DISTURBED CHILDREN

Children with emotional disturbances are accepted for home instruction. Such children may exhibit acting-out behavior in school, but psychiatric probing indicates a possibility of success if they are taught on an individual basis while there is ongoing treatment at a clinic or private facility. Children who exhibit withdrawal or school phobic symptoms are also placed on home instruction with the requirements of an ongoing treatment plan. Minimum intelligence of the child should be in the educable retarded range, and ability to profit from instruction must be demonstrated.

Admission Procedure

If the child is under treatment by BCG, that agency may recommend home instruction. If the child is under treatment by a clinic, a private psychiatrist, or a psychologist, a letter signed by the therapist requesting home instruction with reasons for the request should be forwarded to BCG. This agency reviews the case, makes further inquiries, and forwards its recommendation to BEPH. BEPH then assigns a teacher.

If the child is under treatment by an After-Care Clinic as a returnee from a state mental hospital, recommendation for home instruction may be made directly to BEPH.

In order for a child to continue home instruction, he must be undergoing treatment.

Transfer Procedure

Any of the treatment agencies may apply directly to BEPH for termination of home instruction and transfer to another facility. Such requests must be made by a therapist.

CYESIS (PREGNANCY)

Students of school age who are being served by a shelter during their period of pregnancy are offered individual and small-group instruction by teachers of homebound children. Referrals for instruction are usually made shortly before the student reports to the shelter. Confidentiality of reporting is maintained.

Admission Procedure

The director of the shelter sends a special admission form to BEPH and a duplicate copy to the Bureau of Attendance. Forms are obtainable from

BEPH. The teacher assigned to the shelter is notified to add the child's name to the register.

Transfer Procedure

The director of the shelter sends duplicate transfer forms to BEPH when the child is ready to return to school. Often, a change of school is desirable and may be effected through the High School Placement Office or the District Guidance Coordinator in the case of an elementary or junior high school student.

The "400" Schools

The special classes in "400" schools are organized to meet provisions of the state laws which refer to the education of handicapped children. The program is divided into two sections. One section deals with children in hospitals and convalescent homes; the other is concerned with children in child care centers.[1]

The objectives of the program for hospitalized children are:

— to provide continuity of education
— to help the child adjust to the hospital situation; to give him reassurance and make his stay as happy as possible
— to help bridge the gap between the hospital and out-of-hospital worlds
— to provide rich school, play, and social experience
— to help the child acquire independence in self-care and study habits
— to prepare him to return to home and school or to employment.

Admission Procedure

The teacher confers with the appropriate staff member to discover reasons for hospitalization and the probable duration of the child's stay. If the child is to be hospitalized two weeks or longer, the school admits the child with the physician's approval.

The teacher notifies the home school of the child's hospitalization and requests the transfer of school records (except 103S) with the Notice of Transfer. A hospital class PH form, cooperatively completed by hospital teacher and hospital staff, is sent to the "400" school office for filing. The PH forms are the following types:

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[1] Board of Education, City of New York, *Education of Children in Hospitals and Child Care Centers: The "400" Schools,* Curriculum Bulletin No. 14, 1964-65 Series (New York: The Board), 1965.

PH1 (yellow) Orthopedically Handicapped Children (This form may be replaced by the 012S during the 1970-71 school year.)

PH2 (pink) Cardiac Limited Children

PH5 (green) Chronic Medical Cases

Transfer Procedure

When a child is ready to leave the institution, the attending physician completes the appropriate PH form on which he makes recommendations for school placement. The following procedures apply to the variety of placements in New York City public schools.

Into a Regular Class

The appropriate PH form, the educational records, and the school health records with a Notice of Transfer are sent by the teacher to the admitting school in the child's home district. A covering letter may be used.

Into a Health Conservation Class

Form PH1 or 012S is sent directly to the Bureau for Handicapped Children, Department of Health, 350 Broadway, New York, N. Y. 10013, for children who are to be admitted to classes in Manhattan, Brooklyn, Queens, and Richmond schools. For those to be admitted to classes in Bronx schools, Form PH1 is sent to the same agency at its Bronx office, 1826 Arthur Ave., Bronx, N. Y. 10457.

Form PH2 is sent to the Bureau for Handicapped Children, Department of Health, 350 Broadway, New York, N. Y. 10013, for children being placed in Brooklyn, Queens, and Richmond schools; the same agency at 1826 Arthur Ave., Bronx, N. Y. 10457, for children being placed in Bronx schools; and the same agency at 341 East 25 St., New York, N. Y. 10010 for children being placed in Manhattan schools.

Form PH5 is sent with an appropriate notice (see Form B) by the "400" school to the school doctor of the pupil's receiving school. He forwards Form PH5 to BEPH, 110 Livingston St., Brooklyn, N. Y. 11201, where it will be processed if a Health Conservation class is recommended. Educational records and school health records are retained in the "400" school until a transfer to a Health Conservation class has been arranged.

Into Home Instruction

The "400" school follows procedures previously noted in cases involving Forms PH1 or 012S, PH2, and PH5.

Discharge Procedure

A child is discharged rather than transferred from a "400" school when he is placed in a school system other than the New York City public school system. Form 200X should be completed and forwarded to the receiving school. When verification of the child's admission to the receiving school is obtained, the "400" school teacher may then forward abstracts or copies of school records. The original New York City cumulative school records are retained in the files of the "400" school.

THE DEPARTMENT OF HEALTH

Frequent reference is made throughout this bulletin to the close relationship between personnel of the Department of Health (through its Bureau of School Health and Bureau for Handicapped Children) and personnel of the Board of Education. It should be noted that the Department of Health maintains ongoing health supervision of children in all categories of special health class placement. Physical examinations of children, doctor-nurse-teacher conferences, and home visits are a few of the services rendered routinely and specifically for children in all health conservation classes. More specialized services are extended to certain categories of children discussed in later chapters.

3 Health Conservation Classes

This chapter contains a more thorough review of the function of the health conservation class and places particular emphasis on the work of the HC 20 units for the severely orthopedically disabled. Since the problems encountered in classes for brain-injured children differ substantially from problems in other types of health conservation classes, a separate chapter is included to deal with those classes.

LOWERED-VITALITY AND HEALTH CONSERVATION—BUS CLASSES: Elementary and Junior High Schools

An essential difference between the lowered-vitality and health conservation—bus classes involves the possible need for bus transportation and architectural adaptations of school facilities. In the lowered-vitality class, the child must be able to walk to school and may have to do some stair climbing. Lowered-vitality classes usually include children in grades 1-6, and health conservation—bus classes serve grades 1-12. The composition of the classes, in terms of severity of disability, is likely to be different, too. The health conservation—bus class includes the more seriously disabled children.

Despite the differences mentioned, for the same grade levels the curriculum and day-by-day routines are essentially the same for these two types of classes. Both require multigrade instruction and a regimen that provides for the physical limitations and strengths of each child.

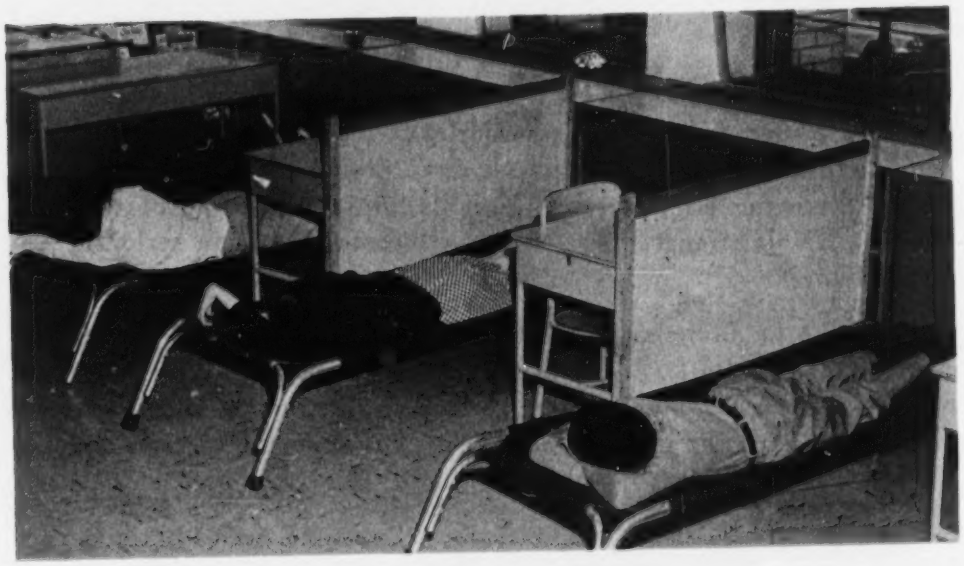
In terms of citywide distribution, classes for children of low vitality in recent years have decreased in number. This trend seems likely to con-

tinue. Children who require the advantages of health conservation classes may receive them in the health conservation—bus class when a lowered-vitality class has been phased out. In such cases, teaching and medical personnel and parents should weigh carefully whether the child should be bussed to a health class in another school or be placed in a regular class in his neighborhood school.

A Balanced Program

The teacher will have to depart from the program offered in regular classes. Greater flexibility than needed in regular classes should be used in setting short-term and long-term objectives, in adapting curriculum, and in organizing routines. Through consultation with parents and medical personnel, and by her own observation, the teacher learns the physical limitations of each child. The teacher should be concerned with overall academic, social, emotional, and physical improvement with the understanding that for most children there will be uneven growth patterns. For some children, the program may approximate that of children in regular classes and require only such adjustments as additional rest periods, special diet requirements, and relief from the tensions of competing with normally vigorous children. Others may need a more modified program with considerable rest and much relief from pressure or strain. A balanced program of work, study, relaxation, and play is good for all children; for children with physically limiting conditions, it is essential.

Rest period



Physical Facilities and Materials

Classrooms should be comfortable, well ventilated, and well lighted. There should be adequate facilities for washing, with provision for towel and soap, and easy access to drinking fountains and toilets. Pleasant lunchroom facilities should also be easily accessible. The use of movable furniture in the classroom facilitates setting up cots for rest. There should be a variety of instructional and play materials suitable for various interest levels, which have, in addition, therapeutic value.

All classrooms, especially those for the physically limited child, should have good lighting; they should be located so as to require a minimum of stair climbing. There should be work space and equipment for the preparation of snacks and for demonstrating food preparation.

Cots used for rest periods should be labelled with each child's name and spaced well apart when in use. Arrangements should be made within the school for keeping them clean and sanitary. Blankets should be dry-cleaned annually and also before being transferred to another child.

HEALTH CONSERVATION CLASSES: High School

Physically limited students who are sufficiently independent in ambulation and self-management attend regular high school classes. These students use public transportation or standard school busses assigned to several high schools throughout the city. For the more severely physically handicapped, special classes and special transportation facilities are available.

At least one high school health conservation class exists in each borough. The room set aside for the health conservation class is usually much larger than a regular classroom and may have handrails and wash basins. Special equipment, such as extra wheelchairs and electric typewriters, are usually available. Movement of the students to different parts of the building and other aspects of their physical management are facilitated through the use of Department of Health aides and student "buddies."

The Program

The health conservation class is an integral part of the school, and those children who can benefit from the regular program are permitted to departmentalize for some or all of their subjects. Some students require

a greater amount of time in the health conservation class where instruction is specifically geared to their special needs.

In addition to instruction in regular classes, students receive tutorial help in most subject areas from their health conservation class teachers. Such help is obviously needed after extended or frequent absences. The health conservation class teacher frequently acts as a resource person for other teachers in regular classes by interpreting the specific needs of individual students. Students who spend most of the day in a health class are given opportunities to socialize with the rest of the school population in the cafeteria, library, assembly, or on school trips. They also are encouraged to participate in afterschool activities.

The acceptance of physically limited students in the high schools affords them worthwhile and rewarding experiences. In addition, teachers and students find that their attitudes toward the handicapped are often modified since close contact tends to erode negative stereotypes about the disabled.

Services offered to regular class students, such as college guidance or vocational guidance, are also available to health conservation class students. In addition, these students may be given special guidance by counselors from the New York State Division of Vocational Rehabilitation. This state agency often makes it possible for handicapped students to receive occupational training or to attend college.

Most physically handicapped students can attend regular high school classes when minor adjustments are made. The health conservation classes on the high school level are designed to assist those long-term, seriously disabled students whose only alternative would be home intruction placement.

HC 20 CLASSES: UNITS FOR THE SEVERELY HANDICAPPED

Many children with severely limiting orthopedic and neuromuscular conditions are able to attend school because of the special accommodations offered in the HC 20 units. HC 20 classes in a special school unit differ from the regular health conservation classes in that they are established to serve children who are so seriously disabled that the relatively minor adjustments of the regular health conservation class could not possibly serve the complex needs of these children.

Teachers of special education are convinced that the proper approach to the education of severely disabled children is a multipronged attack on their problems and that this is best accomplished through the use of an interdisciplinary team: a teacher-coordinator, classroom teacher, speech teacher, psychologist, special education supervisor, the school principal, medical director, pediatrician, physical therapist, occupational therapist, social worker, aides to render physical assistance, and secretary. A major aspect of the team approach is to involve the entire school, parents, and community in the education of the child.

Screening

The professional staff evaluates the physical status, social maturity, and educational potential of each child before admission to the unit. Carefully considered criteria for admission and the screening process are key elements in pupil selection.

In addition to standardized educational and psychological tests, special diagnostic instruments and charts are used to reveal abilities and disabilities. A sample inventory for initial screening of applicants is shown on page 26.

Gaps in the available data sometimes make it difficult to evaluate fully the child's educational and health status. This is particularly true of children who have a history of frequent or long absences from school.

Initially, clinical findings are interpreted and the pupil's total situation is evaluated. Periodically, the child's status is reviewed in order to gauge progress and make appropriate program modifications. The aim is always to assist the child to reach maximum potential and to transfer the child to a less sheltered school environment as soon as sufficient progress is noted.

Physical Plant

The phyical plant for an HC 20 unit has evolved after many years of interviewing staff personnel, conferring with building specialists, and observing the best features of existing facilities. When a unit is planned, a parking area for special busses is provided near a separate entrance which may have a ramp and handrails. Typically, there are several classrooms, rooms for occupational, physical, and speech therapies, a conference room, office, and a medical examining room. Toilet facilities are close to classrooms and are spacious enough for wheelchair movement. Wash basins for personal hygiene and class work are installed in each classroom.

Inventory

NAME _____ BIRTH DATE: ____/____/____

DIAGNOSIS _____

Physical Development

BALANCE AND LOCOMOTION _____

APPLIANCES AND EQUIPMENT USED _____

USE OF UPPER EXTREMITIES

General Handedness

Grasp _____
Can both hands meet _____
Can hand come to front _____
Can hand come to face _____

Stage Achieved in Self-Help

Feeding _____
Dressing _____
Toilet care _____

SENSORY INVOLVEMENT OR MECHANICAL DISABILITY INFLUENCING TEACHING APPROACH

Trunk Motion _____
Eye Motion _____
Vision _____
Hearing _____
Tactile Sensitivity _____

Mental Development

Speech and Language History _____
Comprehension _____
Object Recognition _____
Shape and Symbol Recognition _____
Color Recognition _____
Amount Recognition _____
Orientation in Time and Space _____
Emotional and Social Responses to Group _____

(Use back of card for further remarks.)

There are handrails in all unit classrooms and hallways. All school doorways and corridors are wide enough to permit wheelchair passage and movement with crutches. The building which houses an HC 20 unit must be either a single-story building or a multilevel one with elevators.

When an old building is used, an attempt is made to incorporate both time-tested features and innovations. When the unit is housed in a separate wing of a building, it is important to promote an easy flow of traffic to enhance the feeling that the unit is an integral part of the school.

Curriculum

The HC 20 classes serve children from kindergarten through the eighth year. Classes have an optimum register of twelve children. All health conservation classes strive for a balanced program of work, study, play, and relaxation. There is also a conscious emphasis upon self-help activities in the physical demands of daily living.

A program of physical, occupational, and speech therapy is carried out by therapists following a physician's prescription. All staff members try to incorporate the specific therapy goals into their programs. Thus, as the child goes from classroom to therapy to lunchroom or bus, the whole team is aware of what the child is capable of doing and what efforts should be made to strengthen the areas of physical weakness. Frequent consultation with parents is encouraged so that at home, too, the child may continue to practice and reinforce physical skills. The following is a short outline of activities, equipment, and special considerations related to some important aspects of the unit program:

SELF-HELP ACTIVITIES

In a program of self-help activities, these devices are useful:

To fasten buttons and use zippers

Montessori boards

Large rag doll coat and big varicolored buttons, a dress with small buttons, underclothing with smallest buttons; the same items with zippers. (Doll mounted on a board that can be clamped to a table for security.)

The child's own clothing

To lace shoes

Montessori boards

Graduated size wooden or leather shoes secured to table or floor

Doll with large shoes
The child's own shoes

To put on coats

Adult-size jacket for initial attempts, then the child's own coat

Steps

Anchor one sleeve of coat to back of chair while child inserts arm in other sleeve

Flip coat over the head

(Child uses better arm to assist weaker arm in putting on coat.)

To hang up clothing

Hooks installed at proper height for children
Child-size hangers
Cubicle for each child identified with child's name

To utilize materials needed in work or play situations

Shelves or drawers easily accessible
Items labeled with name or picture for easy identification
Push platform to move materials from one part of the room to another

To hold pencils, books

Pencils

Sponge rubber fastened with tape to pencil
Blunt end of pencil inserted in sponge rubber half
Wooden holder affixed to pencil at perpendicular angle
Pencil fastened to desk with an elastic band

Books

Rubber bands to hold pages
Paper clips on pages to facilitate turning
Wooden book stands for desk use
Page turner

To close and open doors

Door knob fastened to board to practice knob turning

Steps

Practice turning knob
Learn to step to one side of door after latch is released

Learn to step over sill
Turn about and close door

Feeding

Magnetic trays
Regular and special utensils for cutting and lifting foods of different consistencies
Special cups to prevent spilling

Lunch hour

Sidedness

Unestablished or mixed lateral dominance tends to confuse and frustrate children. Reading, writing, and many other activities are dependent to some degree upon established sidedness and handedness. The occupational

therapist is specifically trained to recognize and test for problems in this area, but all personnel exchange findings, observations and plans for remediation.

The results obtained from observation, a battery of tests, the child's history, and a study of the specific disability are weighed carefully before the dominant side is determined.

Training a dominant hand or a nondominant hand (because of lack of function in the dominant hand) requires careful consideration by physician, physical therapist, and occupational therapist for muscle reeducation and exercises. There should be many opportunities for manual work on a large scale, such as creating simple design sketches, pictures and posters, and working with clay. The teacher is also involved in planning classroom activities that strengthen the designated sidedness and handedness.

Special Features

After discussion, members of the team develop individual or group charts and schedules to integrate the therapy program into all activities at the unit. Examples follow:

Locomotion

Helen:	Braces locked. Encourage her to keep them locked as much as possible. It is easier to walk her in this manner.
Hazel:	To wear helmet when moving about in room alone.
Teddy:	Uses one roller tripod and one cane. When in doubt, do not allow him to walk alone. Must avoid falls.

Dressing and Undressing

Dan:	Removes outer clothing. Puts on. Cannot button or unbutton, but can use zippers.
Dorothy:	Can unbutton and remove coat and hat but needs encouragement; is very slow.
Viola:	Removes coat after it is unbuttoned and one sleeve is taken off for her.

Independent Bathroom Activity

Betty:	Seat facing bar. Help with pants. She can hold on bar.
Carol:	Seat facing bar. Should keep head forward and bend at waist in order to relax; or, she can hold on to bar. Watch for backward thrust.
John:	Stand against wall sideways. Help with pants.

Walking Children Outdoors

Dotty: Walk at side.

Jerry: (with canes) Walk behind.

Mamie: (with tripod) Walk at side.

Lucy: (with crutches) Walk at side.

Feeding

Bob:	Hand —	Left
	Equipment —	Plastic straw for milk. Plastic fork.
	Procedure —	Sandwich is to be broken up. Help Bob pierce and he can bring piece to his mouth. Help with soup and dessert.
Jennie:	Hand —	Left
	Equipment —	Special dish and cup. Plastic straw.
	Procedure —	Jennie holds own sandwich. Place solid part of soup in dish. Jennie uses spoon to take food to mouth. Encourage her to relax and balance. Can eat some dessert by herself. Encourage Jennie to bend forward at waist as she stabilizes elbow on table.
Betty:	Hand —	Left
	Equipment —	Relax chair. Cork and plastic straw. Special fork and special cup.
	Procedure —	Betty can try to hold sandwich in hand. Stabilize elbow on arm of chair and bring hand to mouth. May need help to stabilize head as she bites. Sucking is still difficult. Help her by placing straw in mouth. Press container to aid her in sucking. May finish drinking from cup. Help her keep mouth closed as she swallows.

Although children are scheduled individually for the various therapies, much of the therapeutic work is integrated with the functional classroom activities. For example, Kate, who needs special exercise for her right arm, plays ball and other games involving the use of particular muscles during game period. Rica, who needs exercise in moving her lower jaw to help her speech and feeding, is given bubble gum to chew.

SAMPLE THERAPY SCHEDULE							
TIME	SPEECH THERAPY		OCCUPATIONAL THERAPY			PHYSICAL THERAPY	
MONDAY	MISS A	MISS E	MISS R	MISS L	MISS D	MISS T	MISS J
9:00		Pat	Cora	Philip	Dick	Stella	Babs
9:30	Rica	Phil	Ann	Violet	Mary	Phil	
10:00	Fred	Jane	Robert	Cara	Dan	Kate	Norma
10:30		Lily	Cara	Dan	Andy	Babs	Nat
11:00	Andy	Peggy	Violet	Stella	Cara	Alice	Tim
1:30		Sue	John	Jane	Robert	Nan	Sue
2:00		Lorry	Milton				

Self-help develops independence

Classroom Activities

Classroom activities, which cater to group and individual needs, reflect a variety of techniques to stimulate physical, social, emotional, and educational growth. Examples follow:

One corner of the room is filled with children's drawings and stories based upon recent experiences. One story reads: "On Friday, we saw movies about maple sugar. Guess what! We made pancakes. Maple sugar on pancakes is good." After viewing the movie, the children decided to make these pancakes. They brought ingredients from home, prepared them in the school kitchen, and then ate the pancakes with maple sugar.

In back of the room is a snug "Home Sweet Home" corner with a packing box stove, paper curtains, doll, baby carriage, etc., where children visit on their "free time." On the window sills are cheese boxes filled with dirt, ready for seeding. There are big easels, big brushes, and a display of the children's drawings.

David, who is six years old, walks with crutches and leg braces. His favorite song is the watchword of the class:

Get up and do it yourself;
Get up and do it yourself;
You need not bawl
Because you fall;
Get up and do it yourself.

Peggy, a cerebral palsied child, has a mild aphasia. She exhibits a time lag in correlating her speech with her thinking. Aware that such delay is characteristic of many aphasic children, the teacher gives careful explanations and directions, poses questions at a slow rate, and does not make new demands when the child is still involved in the last task.

Tim's mother has suddenly decided that he should grow up because a younger sibling is outdistancing him. Tim comes to school feeling depressed, tense, and harassed. The teacher relieves pressures, contrives successes, adjusts her rate to his. She alerts other personnel to the child's problem so that there is uniform understanding of the difficulty. Contact is made with the parent to talk over the situation.

Therapies are effective if activities and equipment are pleasurable for the child. In speech work, bubble gum plays a large role in helping to correct drooling through improved control of swallowing. Ping-pong balls are used to help with breath control. The same speech teacher supervises

speech and acute feeding problems since similar musculature is involved in both activities.

Children from the regular classes visit the special classes. They are surprised and pleased at the abilities of severely disabled children. Intervisitations between regular and special class children are encouraged. Some unit children participate, on a steady basis, in regular class activities for enrichment in certain subject areas. They gain a feeling of confidence and a more positive self-image. For children whose prognosis is favorable, the possibility of a transfer to a less sheltered setting becomes less threatening.

The program of the HC 20 classes is the result of years of experience and conscientious effort to offer children an opportunity for maximum growth and learning. Much has been said about the interdisciplinary nature of the operation of these units, and there is little question that the pooling of professional knowledge and labor has been a major factor in the positive achievements of the program. However, one must not overlook the important role played by parents, friends, a host of organizations and agencies (public, private, religious, philanthropic, lay, and professional), and legislators on all levels of government in establishing and expanding the services offered by school facilities for the handicapped child.

Because severely physically limited children have such complex needs, the advice and cooperation of parents have always been more urgently required than would be the case if the children were less seriously involved. This mutual need for advice and cooperation between school and parent has often resulted in the kind of partnership that offers children the best chance to overcome adversity and make positive, long-lasting gains.

4 Classes for Brain-Injured Children

The program for classes of brain-injured children in New York City has been one of remarkable growth in a short period. It is likely that its expansion will continue because identification of these children and knowledge of its existence result in an ever increasing number of referrals. The following table portrays the growth of the program:

CLASSES FOR BRAIN-INJURED CHILDREN

School Year	Teaching Positions	School Year	Teaching Positions
1955-1959	1	1964-1965	56
1959-1960	8	1965-1966	78
1960-1961	15	1966-1967	126
1961-1962	24	1967-1968	170
1962-1963	33	1968-1969	203
1963-1964	45	1969-1970	244

These classes were formed to meet the educational needs of minimally brain-damaged children. The operational design of the classes emphasizes a highly structured environment, small class size to permit individualized instruction, a concentrated attack on perceptual learning disabilities, and a diligent effort to enable the child to function in a group situation.

IDENTIFICATION

Early identification of the brain-injured child and placement in the special class greatly increase the chances for successful amelioration of the child's disabilities. Professional personnel and many parents are well aware,

however, of the difficulties of accurate identification of children as brain-injured. This problem is especially pronounced when neurological examination reveals little or no identifiable signs of physiological abnormality, but psychological testing and observation of behavioral characteristics elicit patterns that are strongly suggestive of organic origin. Furthermore, overlapping characteristics raise the question of determining whether the primary diagnosis is brain injury, social or emotional maladjustment, or mental retardation, important considerations when trying to effect proper educational placement.

Once the identification problem has been satisfied, one is still left to consider whether or not the degree of the child's handicap and the stage of his development will permit him to function in the special class. The range of function, achievement, and potential of brain-injured children is so scattered that it is extremely difficult to accommodate and adjust the program to every child who has been labelled brain-injured.

SCREENING

To cope with the problem of identification and to render an intelligent judgment about the possibility of a specific child's profiting from placement in the classes as they are presently constituted, an interdisciplinary screening team has been established. The team is ordinarily composed of a pediatric neurologist, psychiatrist, psychologist, medical social worker, speech diagnostician, special class supervisor, and a teacher-coordinator.

Referring agencies are asked to supply diagnostic data of medical, neurological, psychiatric, and psychometric findings. The child visits a class for brain-injured children where the teacher observes and tests him. Results of the teacher's evaluation are entered on a form which is submitted to the screening team. Reports of previous educational experiences are also obtained. Provision is made for interview, observation, and examination of the candidate by members of the team prior to the full-team conference. Parent interviewing and the participation of other interested professional personnel are important aspects of the screening process.

Screening is facilitated when referral agencies are aware of the following criteria for determining eligibility for admission to these classes:

Presence of brain injury certified through neurological and psychological data

Intellectual ability above the level of mental retardation

Learning disability attributable to perceptual disorder

Sufficient social maturity and emotional control to suggest adequate adjustment to a group situation

Degree of concomitant visual, acoustical, seizure disorder, or other physical handicap to allow for classroom management without undue hardship or danger.

CHARACTERISTICS OF THE BRAIN-INJURED CHILD

Familiarity with the behavorial characteristics of brain-injured children[1] alerts school personnel and others working with children to investigate further the possibility that a particular child may be brain-injured.

Most of the behavioral characteristics associated with brain-injured children are observable to some degree in all children and actually represent normal behavior at certain stages of child development. Abnormality occurs when the degree is marked or the child is long past the age when the characteristic would be considered appropriate. A listing of the various characteristics often attributed to brain-injured children is not intended to imply that these children do not also exhibit general behavioral traits and learning problems seen in all children.

Some of the characteristics to be discussed overlap and some seem contradictory. Most brain-injured children do not exhibit all of these characteristics and some brain-injured children may even exhibit superior ability in an area where others are seriously disabled.

Disorganization

One of the more conspicuous characteristics of the brain-injured child is a pronounced pattern of disorganization. Evidence of this trait is seen in the undue hesitancy and fumbling when approaching and handling relatively simple tasks, and in the general inability to plan a course of action, to make choices, to ask relevant questions, to follow simple directions, and to conform to routines related to self-care, self-discipline, and

[1] New York City Board of Education, *Teaching Brain-Injured Children: A Handbook for Teachers and Supervisors*, Curriculum Bulletin No. 12, 1966-67 Series (New York: The Board), pp. 1-5.

interpersonal relationships. Since the pervasive quality of this disorganized behavior is reflected in nearly all of the other characteristics, it is surely to be regarded as a prominent trait of the brain-injured child.

Distractibility

The ability to sustain attention is very often impaired in the brain-injured child. He appears to be more or less equally attracted to all stimuli in his environment and seems unable to concentrate on that stimulus which is appropriate or required at a given moment. He may also be unable to select or respond to the appropriate stimulus as new stimuli are introduced.

Normally, children are able to function under circumstances which are potentially distracting. For example, they can converse in a noise-filled room, or read in a busy library by filtering out the unimportant stimuli. The brain-injured child who lacks the ability to focus his attention under the impact of competing stimuli becomes distractible, perhaps hyperactive, and may begin to indulge in inappropriate or unacceptable behavior.

Disinhibition

Incapable of controlling his response to extraneous stimuli, the child seems to "fly" to a number of activities within a very short period of time. He attempts to engage in each activity, completes none, and seems unable to inhibit himself from reacting impulsively to the impact of new stimuli which, by now, are self-generating. Hyperactivity is a usual concomitant of disinhibition, but there are occasions when the child's frustration over lack of accomplishment results in a refusal to engage in any activity or in other manifestations of withdrawal.

Perseveration

Perseveration is the inability to discontinue an activity after its objective has been reached and further continuation is neither purposeful nor meaningful. Usually, a child is able to dispense with an activity when he has achieved his goal and received a sense of satisfaction from its completion. The brain-injured child is often incapable of behaving in such fashion. He sets out to hammer a nail in a board and keeps hammering away at the nail long after it has been completely driven in. He attempts to write the manuscript letter *b* and finds himself unable to stop the vertical arm movement in order to make the final circular motion. At times, he seems aware of and even annoyed at the useless repetition of an act, but is still incapable of controlling his response.

Poor Body Image

The brain-injured child may be unaware of or have a hazy conception of the location, function, and interrelationship of parts of the body. If he attempts to participate in activities in an outdoor play area, he may not know how to use his arms and legs to climb or swing on the monkey bars. He may be unable to manipulate his body, distribute his weight, and use the required force at the proper time in order to enjoy a seesaw. His body parts seem to function in an uncoordinated, awkward, and disjointed fashion because he has not developed a real awareness and understanding of their relative position and function, and he may not yet have established laterality.

Spatial Disorientation

Inability to judge distance, depth, and object relationships in space is a frequently occurring characteristic of the brain-injured child. A child may not only be unsure of how to manipulate his body to fit into a play tunnel, but he may also be unable to judge the space required and how to enter so that his head will not hit the top or his sides become bruised. While working with a jigsaw puzzle, he may be unable to match the appropriate pieces to their proper spaces. He unintentionally disrupts class games because he is unable to remain within required boundaries. In copying his name, he is unable to tell where one letter ends and another begins.

Some children are affected to the degree where they may be said to be lost in space and unable to orient themselves in undefined or changing areas. As a result, they develop fears related to height, weight, and distance and are prevented from enjoying many worthwhile experiences or engaging in many essential activities. One easily sees the importance of spatial disorientation as it relates to educational tasks, to the ability to travel independently, and to future vocational considerations.

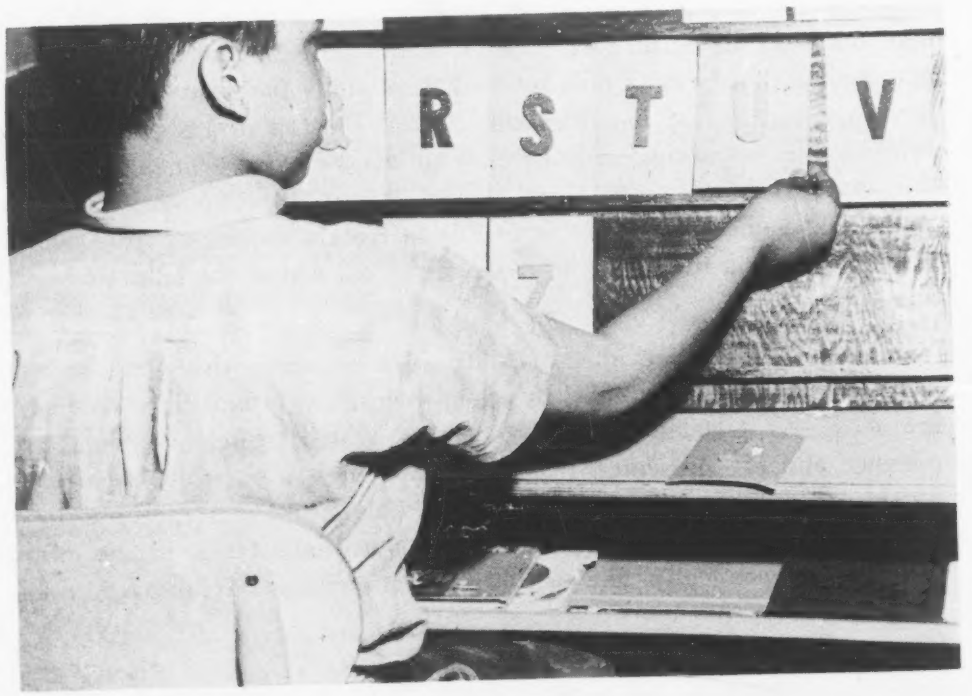
Logical Sequence Confusion

What most children can easily perceive and perform as a natural and logical sequence of actions may seem confusing and illogical to a brain-injured child. In painting, for example, the required series of steps (dipping the brush into the paint, applying the brush to the paper, cleaning the brush in water, and selecting another color for use) may prove too complex a task for some children to follow and repeat. Young brain-injured children, in particular, are confused about the seemingly simple sequence of steps needed to perform easy tasks. In trying to explain their

confusion to a teacher, they may become even more confused because of their inability to express themselves in an organized, logical manner.

It is interesting to note that when the same child finally masters a task and is asked to perform in a way that differs slightly from his accustomed routine, he objects strenuously. For example, a child may have become accustomed to drinking milk from a glass at home. He is unhappy and has great difficulty in shifting to the use of a milk container at school. Eventually, he may adjust to drinking from the milk container, but the substitution of soda as a special treat during the usual milk period may prove upsetting. Variations in the daily routine which make life more enjoyable for most children seem threatening to many brain-injured children.

Large, clear, easy-to-handle materials



Perceptual Disorders

Perceptual disorders in the visual and auditory areas are commonly found among brain-injured children. When the disorder is concentrated primarily in the auditory area with resultant communication and language deficits, the child is usually regarded as aphasic.

Many of the previously discussed characteristics are tied to perceptual disorders in a cause-and-effect relationship. Spatial disorientation, for example, is highly influenced by a weakness in depth perception. The alleviation of perceptual disorders forms the basis of much of the unique methodology and special materials used in the education of the brain-injured child. A few illustrations of some of the frequently encountered visual perception problems should suffice to demonstrate the crucial role of perception in the learning process:

1. *Dissociation* is an inability to synthesize separate elements into meaningful wholes. As the child examines an illustration in a textbook, he is unsure of its meaning because he cannot grasp the relationship of the parts to the whole. As he looks at a word, his attention becomes focused on the individual letters so that the total word escapes him. When trying to copy geometric figures or duplicate a pattern of blocks, he distorts shapes and disfigures the patterns into unrelated elements.

2. *Foreground-background disturbances* are commonly found. In addition to being distracted by extraneous stimuli in his general environment, the brain-injured child may be unable to focus attention on a required item if there is a background distraction in his field of vision. The child does not see Humpty Dumpty sitting on the wall because his attention is riveted on the little blue cloud directly behind Humpty's head. His response to the teacher's question about Humpty seems irrelevant and bizarre.

3. *Perceptual constancy* involves the ability to perceive that an object possesses certain qualities or properties which do not change regardless of the angle of vision, movement of the object, or conditions of illumination. The size, shape, and color of a red block that a child has played with do not change if the block is rotated, balanced on its tip, taken out of the room, or seen under a dim rather than a bright light. A circle remains a circle even when its diameter is doubled. Children who are unable to recognize constancy of shape, position, size, or color are likely to encounter difficulty in recognizing letters or words when they occur in unfamiliar contexts or different kinds of printing and writing.

THE CLASSES

Classes for brain-injured children on the elementary level usually have a register of six pupils. A newly opened class may start with one or two pupils and increase gradually. Whenever possible, a cluster of at least two classes is established. Bus transportation is provided.

Since many brain-injured children cannot sustain the length of a regular school day, it has been shortened to approximately five hours, including the lunch period. An unpleasant reaction to excessive stimulation often occurs when brain-injured children become involved with large, noisy groups at school. A shortened day, different arrival and departure hours, special luncheon arrangements, locating the classroom in an area free of distracting noise or activity—all help to create a less stimulating environment. If it is possible, the classroom should be on the ground floor with toilet facilities nearby for easy supervision.

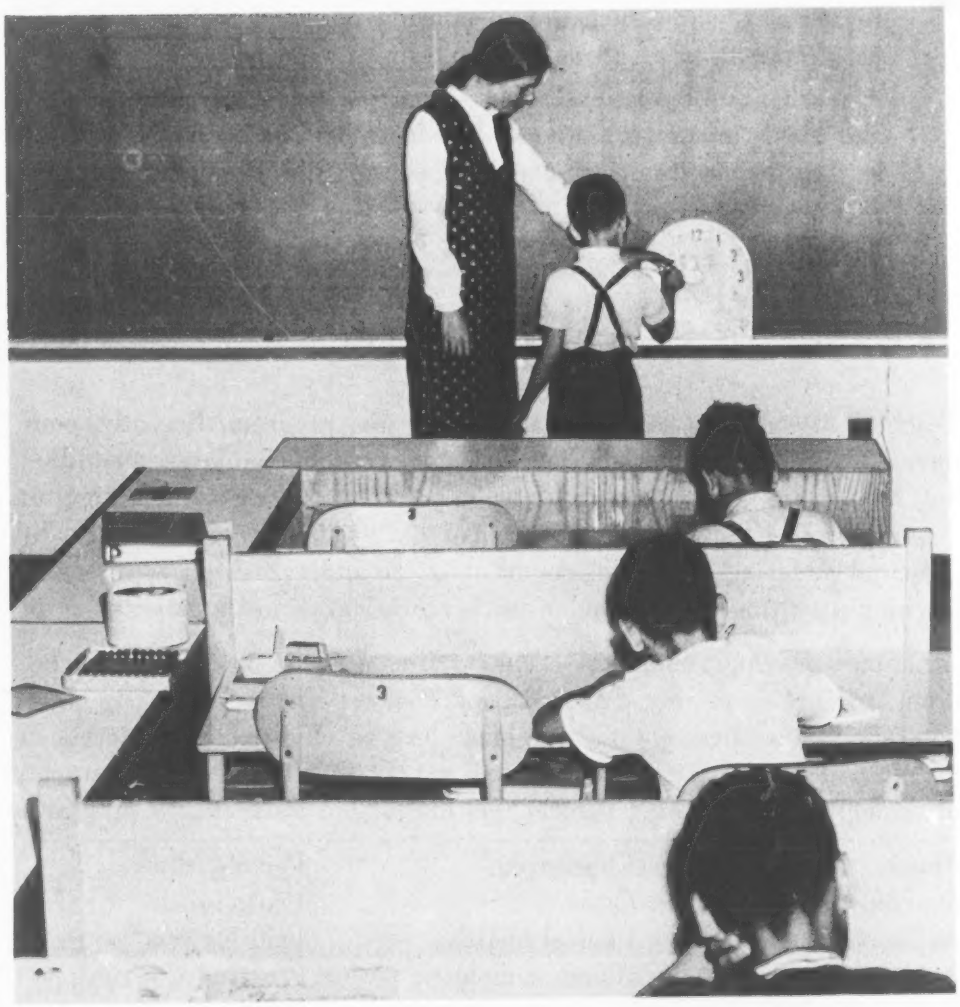
The furniture for the classroom should be movable. Trapezoid tables have been found to be convenient for individual and group work. Room dividers and screens are used as required to provide stimulus-free work and rest areas. Sufficient cabinet space for both individual and group storage of materials is very important in helping to create the atmosphere of order and organization which so many children need.

Cots and blankets are provided for short rest periods which may come before or after lunch, depending upon the needs of the specific group. It may be helpful to darken the room and place a "rest period" sign on the door to avoid interruptions.

THE PROGRAM

Through the studies and experiments of Strauss, Cruickshank, Kephart, and others in the field of special education, programs specifically designed to minimize perceptual learning difficulties and to produce an integrated, socially acceptable personality in each child have been developed. As soon as improvement is noted, an attempt is made to place the child in a less sheltered environment.

One of the distinctive features of the program is the creation and maintenance of a highly structured environment. It represents an effort to cope with the poor behavior, disorganization, distractibility, short at-



A stimulus-free work area

tention span, and the individual learning disabilities of these children. While the degree of structure varies from class to class, the general principle of a well-controlled atmosphere is accepted in all. Structuring may be achieved in these ways:

1. Physical management of the classroom and furniture to create privacy and a distraction-free atmosphere
2. A daily regimen relatively unvarying in programing and time sequence to accustom the child to routines and to promote good work habits
3. The use of learning materials which are intrinsically well organized, easy, and fun to use, which progress in slow stages from simple

to complex, and which are specifically designed to help overcome perceptual disorders through a multisensory approach

4. A teacher-pupil relationship in which the teacher is firm but fair and yields greater initiative and independent action to the children as they demonstrate increasing self-control and intelligent judgment
5. A sequentially developed program for each child in each area of deficit.

MATERIALS

Teachers are alert in seeking materials for the program. Recently, commercially prepared materials have become available in large quantities, but for a long time, teachers have worked arduously in adapting or creating special materials. Regardless of the availability of commercially prepared materials, the great emphasis on an individualized approach to learning problems requires much teacher originality and creativity.

Since developmental lags occur so frequently in brain-injured children, it is not surprising that much material used in regular early childhood classes is often suitable for brain-injured children on all levels of the elementary school. Adaptations and new application of these examples of common materials offer a basis tool kit for the instructional program:

Abaci
Assembly kits
Audio-visual aids
Beadboards
Beads
Blocks
  Parquetry
  Square
Charts, pocket
Clay, modeling
Clipboards
Crayons
Flannel boards
Games, simple
Jigsaw puzzles
Magnetic boards
Paper and oaktag
Pegboards
Pegs
Pencils, thick
Pens, brush
Printing sets
Programed materials
Rhythm instruments
Scissors
Tape
  Adhesive
  Masking
Thumbtacks

Additionally, Montessori, Cuisenaire, Stern, and Frostig materials, along with many other specially prepared systems and programs, have been used profitably with many children exhibiting perceptual deficits. In general, materials that fulfill the requirements of a high degree of simplicity, concreteness, manipulation, sequential development, and motivation are valuable. As the children reach early adolescence, the program seeks additional materials that take into account the impact of physical, social, and emotional factors in an emerging adolescent.

Expansion of the program to meet the needs of the adolescent has given rise to a host of new problems. It is hoped that children who entered the program in the early grades will have improved sufficiently to enable them to be transferred to a less sheltered setting before they leave the elementary or intermediate school. Commercially prepared materials specifically designed for brain-injured children above the age of nine or ten are far more difficult to obtain than materials for the younger child. Teachers who work with the older child adopt an eclectic approach to the selection of materials and often create their own.

SUPPORTIVE SERVICES

After the child has been admitted into the program, and in some cases before entry, an attempt is made to provide additional help through the use of various specialists or resource persons.

In addition to the appraisal of candidates by the psychologist assigned to the screening team, the full range of psychological, psychiatric, and social work services offered by BCG are available to children in the program as they are to all children in the school system. It should be noted, however, that the large number of children served by community treatment agencies, or for whom such treatment is obtainable, ought not receive needless duplication of services by BCG.

The proportion of brain-injured children exhibiting speech and communication problems is far greater than one would find in the regular school population. The Bureau of Speech Improvement supplies a special group of teachers who regularly visit the brain-injured classes. They offer individual speech therapy or work with groups in order to enhance speech and communication skills.

The Bureau for the Education of Visually Handicapped Children permits its staff of itinerant teachers to work with brain-injured children who have visual limitations. Many of these children exhibit problems of visual acuity in addition to the problems of visual perception. Upon request, too, this bureau supplies large-print texts and workbooks for any brain-injured child who may profitably use those materials.

BEPH has a small group of itinerant teaching-coordinators who play an important, dual role in the program. They work with bureau supervisors arranging screening sessions for admission into the program, and they offer individual instruction to a limited number of children who are

not in the program but who might profit from the special education techniques.

Close cooperation among all bureaus within special education helps to deemphasize any tendency to think of children in single categories. Brain-injured children so often exhibit multiple disabilities that only multiple services can provide a logical approach to the mitigation of problems. Extension and coordination of supportive services warrants consideration in future planning.

THE ROLE OF THE PARENT

Parental involvement in special education has characteristically been greater than in regular education. The classes for brain-injured children in New York City provide one of the many examples of the effectiveness of an active parent organization in pressing for better educational opportunities. Everyone familiar with special education is aware of the major role of parents in helping to bring us closer to the fulfillment of the concept of public education for all children.

There is a difference, however, between parental action in helping to obtain educational facilities and parental involvement or participation in the educational process itself. Here, too, parents in special education have generally been more active than those in regular education because of the mutual need between parent and teacher in helping to effect a program that best meets the special requirements of atypical children.

There is a far greater chance for the child to succeed when parent and teacher work and plan cooperatively than when each goes it alone, even though both may be well informed and interested. Since so many areas require a follow-up process, only open avenues of communication can permit the necessary flow of information. An example follows:

> James comes to school one day and the teacher notices that he is "not quite himself." He teases and provokes the other children, insults the teacher, refuses to obey instructions, and does not permit the class to function. While James has never been easy to manage and is subject to ups and downs in mood, he has never behaved so badly. The parent is contacted, informed of the situation, and asked to take John home for the balance of the day. When questioned about his unusual behavior, the parent says that she ran out of James's prescribed medication and forgot to renew it. She also noticed that he wasn't "quite right" when he left the house that morning. The

teacher was both surprised and chagrined. The mother had never informed her that the child had started taking medication some time ago. Such knowledge could have alerted the teacher to watch, record, and report to the parent any unusual reactions, perhaps at certain times of the day, so that the parent could, in turn, better inform the physician about the effectiveness of the prescription. Often such reporting results in a more efficient dosage or a change of medication. Certainly, the episode of this particular day might have taken on a different aspect if the teacher had been aware of the reason for the child's behavior.

Teacher and parent need not work at cross purposes. Willing and able parental assistance is sometimes not fully utilized by the teacher. More rapid progress could often be achieved with parental follow-up of specific drills, exercises, homework, and by suggested visits to places which offer significant learning experiences.

Increased parental participation in the school program has always been desired by alert teachers and supervisors. Parents who join such organizations as the New York Association for Brain-Injured Children are offered another opportunity to obtain help in understanding their children, getting more services, and bringing to the school more knowledge to pass on to the teacher for the ultimate benefit of the child.

5 The Homebound Child

The home instruction program serves children who cannot be accommodated in a school facility because of a physical and/or emotional disability. Instruction is provided from the first through the twelfth grades for both short-term and long-term pupils. A child with a noncommunicable physical disability and/or emotional disturbance is eligible for this service, provided that he will be at home for at least six weeks, is chaperoned by a responsible adult, is educable, and able to profit from instruction. In addition, there must be no hazardous conditions at the home.

General educational objectives apply with equal force to homebound pupils. More specific objectives follow:

- To provide continuity of education
- To return the child to a more normal educational setting, whenever possible
- To minimize the effects of the handicapping condition on the learning process
- To provide a program of socialization in order to counteract the limited experiential background of long-term pupils
- To stress realistic vocational objectives to make the pupil as economically independent as possible.

UNIQUE ASPECTS OF HOME INSTRUCTION

The fact that pupils receive instruction at home gives rise to a number of circumstances not ordinarily encountered in any other type of educational setting. Many educational benefits derive from individual tutoring. However, many disadvantages stem from the absence of group interaction as found in the classroom setting. A number of other aspects are unique to

home instruction, and unless they are understood, one cannot gain a true appreciation of this area of special education.

In the home, teachers become intimately aware of the dynamics of family living and behavior and are given the opportunity to use these insights in a constructive way. Teachers are able to observe, and, at times, mitigate the effects of parental overprotection or rejection. Sibling rivalry can sometimes be channeled beneficially. Opportunities for the development of close personal relationships are expanded in the home instruction setting, a fact which can have positive or negative implications. Easy exchange of information among parent, teacher, and child facilitates the educational process. Teachers are in a strategic position to observe health practices, and to modify those that are detrimental.

Often the teacher is called upon to exert quick, independent, intelligent judgment and action in the physical absence of supervisory personnel and teaching colleagues. Problems in supplies, procedures, teaching techniques, and pupil background are magnified by the lack of easy communication and personal contact with supervisors, office staff, fellow teachers, and agency personnel.

SHORT- AND LONG-TERM PUPILS

One of the first questions the teacher of a newly assigned pupil tries to answer is whether or not the child is to be a short-term or long-term pupil. The answer is significant since it determines the teacher's approach to curriculum and methodology. Generally, a pupil who receives home instruction for fewer than six months is regarded as a short-term pupil, while one who will be homebound for a longer period may be classified as long-term. The importance of these two categories is apparent in the following illustrations:

Pupil A wears a full leg cast as a result of a fractured tibia. It is estimated that he will be on home instruction for three months and will return to regular class to finish the school year. His attitude toward home instruction could produce such disparate reactions as dismay that the school has followed him to his home or overanxiety that he won't get enough instruction to enable him to keep up with his class. In any case, Pupil A tends to identify strongly with his "regular" school and regards home instruction as a very transitory stage. Regardless of the pupil's attitude toward home instruction or education in general, the teacher's aim is to enable the pupil to return to school to resume study with little or

no difficulty. For Pupil A, therefore, curriculum practices ought not to fluctuate too widely from those of the school of affiliation.

Pupil B is a boy with muscular dystrophy. He will probably receive home instruction for the balance of his school career. Here, the teacher's approach is multifaceted and broader and deeper as he tries to meet the pupil's needs educationally, socially, emotionally, physically, avocationally, and vocationally.

Pupil C is either socially maladjusted or emotionally disturbed. While some children in these categories may be on home instruction pending placement in another facility, Pupil C will probably remain on home instruction for a relatively long time and should therefore be treated as a long-term pupil.

Meaningful curriculum practices occur when the teacher is given sufficient latitude to adapt the curriculum so that the pupils receive programs realistic for them. It is obvious that the approach toward the long-term pupil as contrasted with that of the short-term pupil is a more total one.

THE EMOTIONALLY DISTURBED

The homebound program dealing with children whose sole diagnosis is an emotional disturbance has expanded to the point where it constitutes a significant proportion of the total program. While new school facilities for children previously excluded from classroom attendance are regularly introduced into the New York City program, the need for homebound instruction for disturbed children will exist for quite a long time.

Emotionally disturbed children present problems that vary in nature and degree to an extent at least equal to those presented by the physically handicapped children on home instruction. Teachers of homebound children who seem to have achieved a high degree of success in working with disturbed children are usually those who are aware of the very individual nature of the disturbance and are flexible enough in their own makeup to be able to vary instructional techniques to any required degree. Judgment as to what constitutes the required degree is a crucial element in establishing a program for a specific child, and it is in this area that teacher training and professional assistance are very important.

Teachers work very closely with treatment agencies to effect ongoing review of the degree of progress made by the pupils. Change or reinforce-

ment of instructional approach is effected as indicated by facts brought out in the exchange of information between teacher and therapist.

All children on home instruction for emotional reasons are required to be in active treatment with an accredited agency or individual. It is difficult to define exactly what constitutes active treatment in terms of the number of sessions in a given period of time. Some children are seen by a therapist more than once a week, while others may not average once a month. Whatever the treatment plan, the teacher needs to confer with a person who is intimately acquainted with the child and who is in a position to render judgment as to progress being made and the possible readiness of the child for a change in educational placement.

Through the years, teachers of homebound children have found great satisfaction and pleasure, when through their own efforts and able assistance from such agencies as BCG or New York State's After-Care Clinics, remarkable changes have occurred in children who were very ill. Often, it is the home instruction teacher who brings a note of rational, mature reason and judgment into a home so beset with educational, social, and economic problems that hopelessness and despair dominate the scene.

The teacher submits periodic reports on the progress of his students. An initial report is expected to be rather detailed while follow-up reports reflect pertinent changes. The following is a suggested guide for an initial report and is included here to familiarize the teacher with the scope and depth of data needed.

Outline for Case History

The following items are suggested for individual case histories. It is not necessary to include all these items. Select only those pertinent to your student.

HEALTH

1. Summary of significant data: pre-school period
2. Summary of significant data: school period up to date of admission to home instruction
3. Information from school doctor, nurse, parents, others in the school, clinics, private doctor, concerning health status of child, recommendations for treatment, follow-up, etc.
4. Treatment plan: in school, home, community (agencies, clinics, etc.)
5. Follow-up

EMOTIONAL ADJUSTMENT

1. Personality deviations; behavior disorders; neurotic symptoms
2. Family relationships
3. Attitude of parents toward child, attitude of brothers and sisters
4. Attitude of child toward parents, sisters and brothers
5. Attitude of child toward school, teacher, other helpers, schoolmates
6. Attitude of child toward doctor, nurse, dentist, other helpers
7. Interviews with school personnel, doctor, nurse, parents, agency workers, etc.
8. Treatment plan
9. Follow-up

SOCIAL ADJUSTMENT

1. Brief picture of family: parents' marital adjustment, socioeconomic status
2. Parent-school relationship: quality of cooperation
3. Social agencies interested in the family (Information obtained through nurse, doctor, school personnel, Social Service Exchange, etc.)
4. Treatment plan
5. Follow-up

ACADEMIC ADJUSTMENT

1. Summary of findings up to date of admission to home instruction: abilities, interests, needs, limitations, etc.
2. Educational status of child upon entrance to home instruction and results of intelligence and achievement tests
3. Progress; follow-up

CYESIS

The program for unwed mothers is one of the lesser known aspects of the work of BEPH. The recent increase in the number of unwed school-age girls who face maternity and wish to continue their education during pregnancy has resulted in an expansion of services. Individual and group instruction at shelters is given by teachers of the homebound. While cyesis is not ordinarily categorized in the realm of a physical handicap, the actual effect is similar in that the girl cannot attend regular classes. Many girls who would have become school dropouts have been encouraged to continue their schooling because continuity of education was not seri-

ously hampered and because they were inspired by the personal attention and understanding of their special teachers.

In addition to this program, the Board of Education has opened special schools, known as Schools for Pregnant Students. Girls attend these schools during pregnancy, and they may return, after their babies are born, to finish out the term. Here again, continuity of education is the aim.

THE SCHOOL OF AFFILIATION

Each student is affiliated with a local public school after placement on the home instruction register. Marks are given by the home instruction teacher and are recorded both at the office of BEPH and the school of affiliation. The acceptance of marks and the granting of diplomas by schools of affiliation justifiably lead to the conclusion that the curriculum requirements of the schools are being met by the homebound pupil. School personnel, however, must be aware that the special needs of the homebound often require curriculum adaptation, modification, and innovation.

When the prognosis indicates that a child will eventually enter or return to regular schooling, the teacher prepares the child for the transition. In addition to following the general grade curriculum, the teacher ascertains the school's treatment of that curriculum, and, if possible, the specific treatment of the curriculum in the actual class the child will enter.

Children who have not attended school or who have been away for a long while profit from a close relationship with schools of affiliation. Actual participation in many of the school's activities is an effective way to maintain pupil interest in returning to school. Some principals from schools of affiliation visit homebound pupils to give them encouragement and guidance. Several schools sponsor projects whereby their pupils visit homebound pupils, write to them, and exchange holiday and birthday gifts. Homebound pupils are invited to write for school publications, to attend assembly programs, and to participate in other suitable activities. Some teachers report, "The pen pal clubs we have organized for homebound pupils have proved a good means of communication with other pupils. We try to improve the quality and quantity of these correspondence contacts." Consequently, when these pupils return to school, they find they are readily accepted and already acquainted with a number of children.

SOCIALIZATION

The child who does not receive the stimulation of social contacts or personal glimpses of the world away from his home is likely to demonstrate a muddled and hazy concept of areas of knowledge regarded as commonplace for children of the same age and mentality. To overcome this disadvantage, the following program of socialization has been developed:

Visits
Letter writing
Newspaper production
Telephoning
Parties arranged by teachers before or during holidays
Trips to museums, libraries, U.N., arranged by teachers for groups of children
Camping programs in cooperation with public and private agencies

BEPH also works closely with recognized agencies, such as the United Cerebral Palsy and the New York Philanthropic League, which offer socialization programs for handicapped children throughout the year. A special program for academically retarded, physically handicapped, and emotionally disturbed high school students is conducted by home instruction teachers at the Federation of the Handicapped. This program, described in greater detail in this chapter under the heading, Core Program, provides an educational facility that offers an excellent opportunity for socialization. Even if a student is not ambulatory, the problem of providing socialization is not insurmountable.

CURRICULUM PRACTICES

Adapting the curriculum so that it is realistic and meaningful to the homebound constitutes one of the great challenges to teachers of such children. The length of time that the child will be at home is, of course, one of the crucial considerations in helping the teacher decide which approaches are feasible, and the time factor, in terms of hours of instruction per week, weighs heavily in setting goals and in determining methodology.

Lack of time (compared with the total hours of regular schooling) is one of the chief stumbling blocks to curriculum coverage; the teacher must seek and use short cuts. Planned integration of subject areas is an

obvious and fruitful way to cope with this problem. A written assignment in social studies becomes an assignment in language arts as well. A science lesson is planned so that mathematical elements emerge on a level suitable to the child's level and ability. Integrative techniques are especially important on the high school level where there is often a race against time to prepare students for required uniform examinations. Use of the High School of the Air for Home Instruction programs provides an excellent way to alleviate some of the pressures on the teacher and student.

The next chapter, "Adapting the Curriculum," contains many suggestions that are applicable to the homebound child. Teacher interest and resourcefulness remain the chief tools in evolving a meaningful curriculum, and teachers are given leeway and encouragement in using independent judgment.

There is much experimentation in techniques of teaching. Projects in the use of home-to-school telephone have been undertaken for eligible individuals. Teleclass, group instruction by telephone, is also being utilized in conjunction with the High School of the Air and with other home instruction services to supplement the secondary school curriculum. Programed material, used in a supplementary fashion with a number of homebound pupils, has met with varying degrees of success.

The approach to curriculum is eclectic. Those experienced in teaching the homebound know that no single answer exists to the problems encountered in establishing a valid and worthwhile curriculum for the homebound child.

Teaching Aids and Materials

Although it is impossible for BEPH to meet the instructional needs of its teachers who work on every grade level and are scattered through the five boroughs, it does make available to them aids and materials not easily acquired through other sources. At BEPH offices, one finds, at various times, and in varying quantities:

- Textbooks
- Arts and crafts materials
- Sketching and drawing materials
- Paints and brushes
- Sewing machines
- Fabrics
- Upholstery materials
- Millinery materials
- Recordings—foreign language and others
- Radios
- Magazines
- Maps and charts
- Filmstrips, slides, and projectors

Other sources of aids and materials are schools of affiliation, cooperative parents and pupils, and the resourceful teacher. Schools of affiliation, on the elementary and junior high school levels, offer textbooks and supplies as a matter of routine. The furnishing of other aids and materials depends on the individual attitudes of school personnel and, of course, on the availability or quantity of items in the school. On the high school level, textbooks, other than those supplied at Bureau headquarters, are loaned by the schools. Again, individual attitudes and availability of items determine the variety and type of material offered. Some high schools have loaned microscopes, and others have arranged special showings of motion pictures for ambulatory students.

The alert teacher makes use of educational materials which cooperative students and parents often make available. For example, a bowl marked "Made in Mexico" may have meaning in a discussion of the Mexican economy; a can of food with its grade marked on the label could be an aid in consumer education; an inventory of foodstuffs may provide practice in business arithmetic. The possibilities are infinite. Other aids that teachers have found in the home are:

- Typewriters
- Books and magazines
- Radio and television
- Paintings and photos
- Maps, globes, charts, calendars
- Assorted pets, aquariums, plants
- Assorted fabrics, textiles
- Cameras, motion picture projectors
- Electrical appliances and parts
- Phonographs, recorders

It must be stressed, however, that parent and student cooperation is necessary if any use is to be made of the home materials.

Teachers constantly seek aids and materials to make their lessons vital and meaningful. Because home instruction requires an unusual amount of multigrade instruction, teachers find that vast amounts of material are required. The problem of filing and storage of materials for future use is a difficulty encountered by all home instruction teachers.

Special Teachers

A special teacher is one who aids the regularly assigned teacher in the instruction of a given pupil. There are two types of such teachers. The first is the specifically licensed home instruction teacher of handcrafts, whose scope may also include fine arts and drafting. This licensed teacher teaches fine arts and drafting to a student majoring in these subjects. The other type of special teacher is the regularly licensed teacher of

homebound children whose proficiency in a subject, such as mathematics, foreign languages, or commercial subjects, enables him to teach it. The availability of both types of special teachers usually depends upon their registers. If a special teacher is not available, it may necessitate a change in the student's proposed program. Requests for special teachers are made to the supervisor.

The Core Program

The core program arose as a possible solution to the problem of the homebound, overaged, and/or retarded student with a physical or emotional handicap. Low IQ's, poor achievement in reading and arithmetic (often less than the third-year level), and general school records indicated slow progress and, in many cases, severe emotional involvement. These students were most likely to fail or drop out of school if they were not given special attention. A number of drastic changes were made in curriculum and methodology, and a number of teachers with a specific desire to help these children were pioneers in a relatively unexplored area of education.

The curriculum for core is a cooperative enterprise built by the teacher and the student. It implies a process of developing skills, attitudes, and personality traits through the media of newspapers, magazines, reference books, radio, films, and other resources. Core attempts to improve the student's ability to communicate with others, to live with and understand others, to adapt to the community, and to be useful citizens and better human beings.

Students on core experience educational and social benefits through trips and/or attendance twice a week at the Federation of the Handicapped, 211 West 14 St., New York, N. Y. 10011. Since an important aim of core is to improve basic skills, the program at the Federation focuses on remediation through high interest activities. Textbooks are supplemented by materials constructed by teachers and students to meet individual and group units of study.

Core is alert to the vocational needs of the pupil. Frequently, children develop unrealistic vocational ambitions and establish goals they cannot possibly attain. The core teacher endeavors to instill in the child and his family realistic, yet positive, attitudes which will reflect and effect the compatibility between the child's plans and his capabilities.

At the Federation of the Handicapped, students engage in social, recreational, educational, and prevocational exploration under the super-

vision of a group of home instruction teachers. The program has included such activities as woodwork, ceramics, arts and crafts, music, typing, dressmaking, switchboard operating, and training in the operation of a cash register. Movies, discussion, games, and music are woven into the program in such a way as to motivate the students to reach their maximum learning potential.

Students in the core program at the Federation of the Handicapped make many adjustments. They learn to travel independently, acquire confidence, poise, and initiative, and often obtain employment. The emotionally disturbed become eager to help the physically handicapped, diminishing, in the process, their own emotional tensions.

The underlying philosophy of core stems from an acute awareness of individual differences, knowledge of the whole child, and the use of intrinsic motivation. These principles guide teachers in effecting a maximum contribution to the growth of children with many handicaps.

High School of the Air

Instruction by the home teacher at the high school level is supplemented by the High School of the Air, broadcasting on the Board of Education radio station WNYE-FM. Thirty-two programs are aired each week. These broadcasts cover English, grades 9 through 12, general science, biology, world history, and American history. The radio lessons in most of these series are broadcast four times a week.

A radio class consists of a High School of the Air teacher and four students from Brooklyn Technical High School, where WNYE is located. The radio class gives the pupils at home a sense of participation in the classroom work. They know the boys and teachers by name, by voice, and, with continued listening, by personality. The broadcasts are simulated classroom lessons, with the addition of all the tricks which can be used in radio: disc recordings, tape recordings, interviews, music, dramatic readings, dramas, portions of new broadcasts, etc. The home teachers integrate the radio lessons with their own teaching wherever possible.

Homebound students who can travel often come to the studio to participate in the broadcasts. Programs, frequently taped in the homes of students who cannot travel, are broadcast later. Sometimes a number of students gather in a home to prepare and record a lesson which is broadcast two or three days later. They benefit greatly by working and learning together. From time to time, radio teachers also pay social visits to the homes of homebound students.

Listening to H.S. of the Air broadcast

Whenever students send written work to the High School of the Air, it is read and returned with comments. The radio programs are a means of communication and sharing among the students. It is always thrilling for them to hear on the radio their compositions, their names or names of friends, their recorded voices, or news of their activities. These experiences are socially stimulating to these boys and girls, and they give them hope and a desire to carry on.

The textbooks used in English, science, and social studies are standardized after consultation among the High School of the Air teachers, committees of homebound teachers, and supervisory personnel in BEPH.

Detailed study guides, showing the nature of each day's lesson, and including questions and suggested activities, are mailed to students and teachers. Among other things, these guides include textbook page references, charts, diagrams, bibliographies, word lists, homework assignments, etc.

FM radios are supplied by the Board of Education to homebound students who do not possess FM radios. The radios are also repaired by the Board of Education through the office of the High School of the Air.

Students who are studying typewriting receive typewriters on loan through the funds supplied by the High School Division.

The High School of the Air collects, edits, and prepares material for *Chatterbox*, a magazine which consists of articles, poems, stories, etc., written by homebound students. This magazine is published six times a year and is mailed to students and teachers along with the study guides.

In addition to the high school homebound students who receive supplementary instructions through the High School of the Air, thirty-two school systems in Westchester and Long Island are receiving the study guides for their homebound pupils.

The radio programs achieve several objectives for the homebound. They help to enlarge the instructional program and expand the usually limited social experiences of these youngsters. They bring the classroom and something of the outside world into their homes. A close relationship among the radio teachers, the students in the radio class, and the home students provides for a sense of identification with a school situation.

RELATIONS WITH PARENTS OF THE HOMEBOUND

In no other area of instruction do teachers have the opportunity to become so intimately aware of the personal lives of pupils and their parents. Such a situation has both advantages and disadvantages.

The advantages are great enough to constitute a prime factor in one's desire to become a teacher of the homebound. There are few places where a teacher is so warmly received by grateful parents and pupils. Nowhere else can a teacher become so aware of a pupil's academic strengths and weaknesses as in a one-to-one relationship. Guidance based on a knowledge of the pupil's background and ability as well as on parental desires can be most effectively offered. Teaching aids and materials, often beyond what is available to a classroom teacher, may be placed at the disposal of the teacher by the cooperative parent.

A teacher should be aware of the disadvantages, too. In homes where the teacher is not well received, he has an uphill struggle to win acceptance by the parent. In some homes, the teacher represents an authority figure that was a repugnant one in the parent's own childhood, and the teacher must expend effort to show that he is prepared to offer valuable help to

the child. If the teacher becomes intimate with the family and gets too involved in its personal problems, the required objectivity for professional competency may be lost. There may also be some difficulty in teaching in a home where the parent regards herself as an educational expert and prescribes a course of study and methodology which are at variance with the teacher's own estimate of the child's needs.

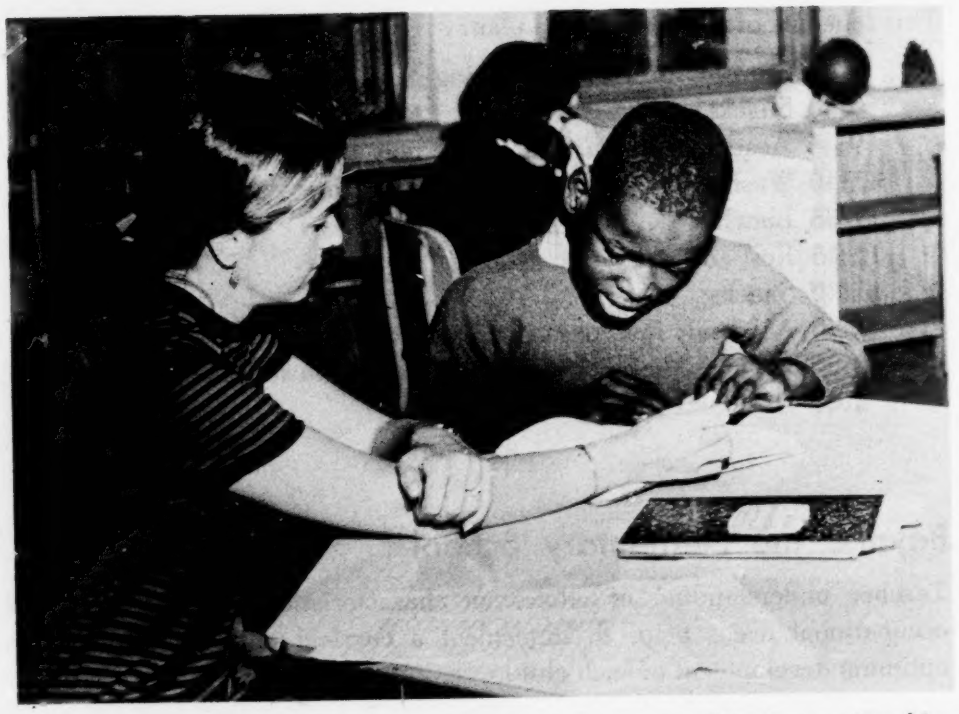
The teacher who exercises tact, commonsense, sensitivity, warmth, industry, and fairness nearly always finds acceptance and respect by pupil and parent. Most teachers of homebound children seem to possess those positive qualities needed to turn pessimism to optimism and disadvantage to advantage.

6 Adapting the Curriculum

The curriculum of New York City schools has been defined as consisting of all the experiences, including all the subject matter and skills, which are utilized by the school to further the aims of education. In the teaching program for children with special health needs or with physical impairments, each child's situation is considered individually. The physically limited child is helped to understand his condition, to learn to make the most of his abilities, and to develop positive attitudes toward coping with his physical limitations. The program of instruction takes into account information gained from the child, parent, physician, the nurse, the teacher, and personnel from social agencies and child guidance clinics. In addition to the more traditional subject areas, education for these children includes an emphasis on relationships, nutrition, rest and relaxation, recreation, and activities of daily living.

Children with health problems or physical impairments often fail to develop effective interpersonal skills. Since they may enter school after intervals at home or in hospitals, they tend to be ill at ease and unsure of their relationship with peers. Much can be done to make up for these lacks. The school can help by providing learning and play experiences that bring children together regardless of disabilities or limitations. School personnel encourage children to join in extracurricular and out-of-school activities provided by public and private agencies. Parents are informed of the importance of social relationships and the child's need for many varied experiences.

Curriculum adaptations for specific subject areas follow a general discussion of topics basic to curriculum planning for the physically handicapped.



One-to-one teaching

PROGRAMING

Programing is not just a matter of scheduling a group of children but of providing each child with a program that meets his unique needs. Flexibility in administrative procedures and in class organization makes possible the utilization of all the resources of the school for all children with special health needs in regular or special classes.

Some children assigned to health conservation classes need a more protected environment and therefore remain in the health conservation classroom most of the day. However, they participate in as many school activities as possible. Depending upon their physical condition, needs, and interests, they may participate in shop activities, assembly, audio-visual instruction, clubs, school meetings, and monitorial duties.

Sample Daily Program: Elementary School

Some flexibility in the daily program is necessary to help avoid friction and disappointments, to meet special individual needs as they arise, and to take advantage of educationally significant opportunities as they emerge.

This schedule of activities is one plan:

9:00 Morning exercises: planning
9:30 Snacks
9:45 Academic instruction (some may go to regular classes)
11:40 Wash up, put down cots, music or story
11:55 Lunch
12:45 Rest and relaxation
1:30 Snacks
1:40 Academic instruction
2:25 Projects, hobbies, arts and crafts, music, play activities, etc.
3:00 Dismissal

Beyond the Elementary School

Teacher understanding of adolescent characteristics and of social and occupational needs helps to implement a curriculum that promotes the optimum development of each child.

The handicapped pupil may fall behind in his work because of frequent absence. He can be helped to overcome retardation through individual tutoring and the use of good motivational techniques. Competence in basic skills often helps the adolescent gain status with his peers.

Opportunities for enrichment in the form of arts and crafts, hobby clubs, trips, school and community projects assist in narrowing the experiential gap between the physically limited and physically normal child.

The new horizons and emerging powers that manifest themselves in the adolescent youngster make this period an excellent time for the pupil to assume more responsibility for improving and maintaining his health status. This should also be a time for exploration. The pupil should participate in as many activities as his abilities permit so that he may discover and develop his strengths, aptitudes, and interests.

Articulation procedures are necessary to assure continuity of care and education for the student who is about to enter intermediate school or high school. In order for the admitting school to understand the pupils' special needs and to adapt its program to meet them, the teacher of special education and the guidance counselor make sure that all pertinent information is relayed to the health and guidance personnel of the receiving school. This information may include: psychological findings, academic achievement, personal adjustment, and suggestions for programing.

Rest and Relaxation

Many below par children need frequent periods of rest and relaxation. Some do not get their full quota of rest and sleep at home and, therefore, come to school tired. Many have energetic spirits but fatigue easily. A daily rest on cots provides not only an opportunity for recouping energies but also develops rest habits.

Individual children may have very specialized needs in regard to resting. One child may need a short rest after a long bus trip in the early morning. A cerebral-palsied, athetoidal child may wear himself out with the waste motion characteristic of his condition and need frequent rest. Another child with heavy braces may benefit by relaxation in a reclining position as suggested by a physician. The overall needs of the class will determine the dominant pattern of the rest period. The health problems, the age of the children, and individual home situations are important factors. Some children strongly resist sleep, and teachers should be alert to possible causes for resistance. Some children even have a fear of sleep and may need help in overcoming the fear.

The following suggestions show how some teachers make the rest period immediately following lunch profitable and enjoyable:

- In many health conservation classes, the room is semidark if the children are going to rest with eyes closed. Soft music is played; the teacher reads a short story to help the children drop off to sleep.
- In one class, the teacher and the children made cloth headrests which they fitted over the ends of the cots. Some mothers joined in the sewing and later shared regularly in laundering the headrests.
- All the children help to set up the cots and blankets. Each child has his own numbered cot and blanket which are put in the same place every day.
- A sign, REST PERIOD, is placed outside the door to discourage interruptions. When the children come in after the lunch period, they take off their shoes and lie down on their cots.

PLANNING

Planning is basic to good teaching. Only by careful planning can the teacher and pupil select those experiences best suited to the child's needs. Planning saves time and enables the teacher to get maximum use of the materials and resources available. All plans should be flexible enough to

permit shifting of emphasis, or introduction of new material, or integration of recommendations for physical care and special needs into the instructional program.

Pupil-teacher joint planning helps the child understand why special experiences are provided for him. He understands that the skills he develops in the therapy rooms serve him well in the game period and at lunch time; that the extra rest on a cot provides the relaxation he requires and helps store up the energy he needs for other activities; that clinic visits and supervised lunchroom experiences are part of the health and nutrition program.

A teacher of a health conservation class, for example, should have short- and long-range plans for each child and for the class as a whole. These plans serve as a tentative guide and are modified as the program develops. They may include such items as an outline of the general course of study, projected trips, audio-visual program, and required materials. A weekly plan includes aims, content, and skills to be developed. Individualized homework assignments as well as specific independent activities are included.

The Unit

The unit approach as a basis for instruction involves researching, pooling of information, and reporting. It clarifies important concepts by cutting across arbitrary subject area divisions. Information from many curriculum areas is integrated into a meaningful "gestalt." The amount of time spent on a unit depends upon pupils' interests, needs, and abilities. It is generally wise to have units of short duration for physically handicapped children on the primary level and a small part of each day devoted to unit experiences.

Group Work

The heterogeneous group in a special class presents a lifelike setting for living and learning. Grouping and regrouping are inherent in this situation. Children are given an opportunity to work with the group best suited to their needs, interests, abilities, and achievements. Examples follow:

George is a nine-year-old boy with a mental age of eleven. His motor coordination is poor and his teacher says he is "all thumbs." Socially, he behaves like other boys his age and feels comfortable with them. He reads with the 10- to 12-year old group and works

Activities for a unit on nutrition

with them in social studies. In games, he teams up with Richard and Jerry, aged 8 and 9. He has mathematics with the 8- to 9-year-olds and receives additional individual instruction in this area of weakness. He receives individual penmanship instruction and is encouraged to participate in manipulative activities such as finger painting and clay play.

Susan, Joan, and Robert are members of the science committee. Willie, Charles, and Patty are making a work bench for the class. Raphael, bilingual in Spanish and English, is chairman of a reading group which consists mostly of children for whom English is a second language.

The organization of groups in a classroom is more than just a physical process of dividing up the class. The needs of individual children are

analyzed and form the basis for establishing groups whose members have similar requirements.

Every teacher should be careful not to draw inflexible lines between reading groups. It is a wise practice to have recreational reading or story-telling or dramatizations shared by all groups. A good class unit should be broad enough to stimulate the interests of the slowest child, yet hold the interest of the brightest child.

Homework

Homework should be an outgrowth of some class experience and within the scope of the child's ability. The assignment should increase the child's informational background and reinforce his basic skills. An additional value of homework is that it enables parents to gain some knowledge of the type and level of the child's work.

Any homework which places a strain on the physically limited child or his family should be avoided. Reading, playing an educational game learned in school, or viewing a television program are suitable assignments for some children, while others may be able to accomplish more formal or demanding assignments. Some class activities may be carried over to the home and be the basis for family sharing. Making a costume or a prop for a play, trying out a recipe, playing games, reading to younger members of the family, and sharing hobbies are examples of such activities.

Since the length of the homework assignment is important, it is suggested that teachers on the elementary level use the following guide:

15 minutes in grade 1 (no written work)

20-30 minutes in grades 2-4 with some written work

45 minutes in grades 5 and 6

Participation in School Activities

Participation in school activities beyond the area of the health conservation class is important in helping physically limited children build healthy self-concepts and develop a broad range of social skills. In addition, opportunities are provided for the acquisition of new competencies in many disciplines. The task of involving physically limited children in out-of-class activities requires the cooperation of the entire staff and is gained by enlisting the aid of the supervisory and specialist staffs and by interpreting the program to the staff, parents, and the public. When con-

A picnic lunch

ditions permit, an attempt should be made to integrate a special-class child into regular classes for subject areas in which the child has sufficient ability to compete on favorable terms. This is one of the advantages of having clusters of special classes in a regular school.

Physically limited children in special classes participate in such out-of-class activities as the general organization, student council, field day exercises, safety patrol, school festivals, trips, clubs, and auditorium programs.

Trips

School trips are excellent means of acquiring firsthand experiences for the handicapped child who so often has a limited exposure to cultural and recreational facilities within the community. In preparation for the trip, the teacher should use the following checklist:

Are there steps to be climbed?
Is there an elevator?
Are wheelchairs available? If they are, can they be used?
Are toilet facilities accessible?

Are there facilities for having lunch?
Do transportation facilities meet the needs of all the children?

During the teacher-pupil planning sessions, the following items should be discussed:

- Determining the major purposes of the trip
- Developing a list of questions to be asked of resource personnel
- Organizing committees when necessary
- Developing and/or reviewing skills on note-taking
- Developing a code of behavior

For all trips, parental consent and the approval of the principal are required. If the pupils are using a district bus, arrangements are made through the school. If a hydraulic bus is necessary, a request is sent to the BEPH supervisor well in advance of the trip. If the trip is approved by the supervisor, the request for transportation is forwarded to the Bureau of Pupil Transportation.

LANGUAGE ARTS

The language arts curriculum consists of reading and literature, oral communication, listening and observing, and written expression.

In addition to those elements which create reading difficulties for all children, special problems may arise from a handicapping condition and may interfere with the reading process. Since physical impairments often create personal adjustment problems, the teacher must consider obstacles that can be attributed to somatopsychological factors.

An enriched background of social, cultural, and educational experiences is commonly accepted as an important factor in the acquisition of reading skills. The physically limited child is so often experientially limited in these areas that special provision for filling the void should be included in the total reading program. Through opportunities for varied experiences, the use of interesting materials, individual instruction, and sympathetic guidance, the teacher can ameliorate the deleterious effect of the narrow world of many physically impaired children.

Physical limitations per se hinder a child's progress in learning to read. Children must cope with such handicaps as disturbances in vision or hearing, lack of ability to posture the body or head correctly, and the inability to lift a book or turn a page. Poor general health related to

malnutrition, lack of sleep, persistent overstimulation, chronic infections, or other debilitating conditions tend to divest the child of the interest and energy needed for learning to read.

The following examples meet some of the common physical management problems related to reading:

- The use of cutout tables, adjustable angle or height tables, and stand-in tables to achieve proper book level and placement for children in wheelchairs and/or leg braces
- Separation of book pages and enclosure in cellophane or acetate jackets to prevent unintentional creasing, tearing, or dirtying, and to facilitate page turning
- The use of metal tabs on cellophane jackets and a magnet-tipped stick to facilitate page turning (Commercial automatic page turners are also available.)
- The use of bookracks to raise books and anchor pages (Paper clips, pegs, clothespins, and rubber bands are also used for anchoring and turning.)
- Print enlargement through magnification lenses or large-print editions to assist pupils with visual acuity or perception problems.

Grouping for Reading Instruction

Since health conservation classes are usually organized on a multigrade basis, a very wide range of reading ability is likely. Consequently, careful grouping for reading instruction is required. In establishing groups, the teacher should use standardized test results, informal textbook tests, personal observation, and information from pupil personnel cards.

Specific reading problems should be carefully noted. The teacher's initial approach should be diagnostic to enable her to know and then attack the areas of deficiency.

The personal and social adjustment of the pupils should be noted. The child who suffers from nervous instability and lacks confidence should not be put into a group that overtaxes his ability.

The first group established should consist of the better readers who are capable of working independently. As the first group gets under way, attention can be given to the other members of the class. It is difficult to work with more than three groups in a health conservation class. Two groups are preferable, but this is not always possible because of the great differences in the achievements of the pupils.

The Role of Perception

The role of perception in reading has received much attention in recent years. Perceptual lags hinder the acquisition of concepts, facts, or even familiarity with common objects and retard the development of spatial, temporal, and social relationships. New approaches to reading instruction involve methods of mitigating the ill effects of visual, auditory, and/or motor perceptual deficits.

Estimates of the number of children with reading retardation attributable to perceptual problems vary, but even minimal estimates offer the rather substantial figure of ten percent of the school population. Educators are convinced that perceptual training techniques may be applied profitably to very large numbers of children in regular classes, particularly on the early childhood level.

Many children with ailments of all types related to central nervous system disorders exhibit perceptual learning problems. Certainly, the incidence of perceptual impairment among children with cerebral palsy is high. It is likely that a higher ratio of perceptually impaired children will be found in health conservation classes than are found in regular classes. Of course, those health conservation classes specifically designated as classes for brain-injured children are primarily composed of children with perceptual problems.

Teachers of health conservation classes and teachers of homebound children are alert to evidences of perceptual weakness and recognize the need for remedial techniques. The chapter dealing with classes for brain-injured children contains material which offers further insights into the problems associated with perceptual learning disabilities.

Oral Communication

Many opportunities for practice in speaking arise during the day. Answering questions, participating in discussions, or rehearsing for plays are a few of the obvious opportunities for oral expression in the classroom. The teacher makes every effort to correct common speech defects and poor speech habits. If the defects are severe, the child is referred to the speech teacher for evaluation, remedial work, or recommendation to a more specialized treatment agency. Children in the HC 20 classes are given speech training by speech therapists assigned to the unit.

The telephone is an especially important instrument to a handicapped person. Children should be taught how and when to use the telephone.

The New York Telephone Company teletraining program offers the services of a telephone specialist, actual equipment, teacher guides, and student booklets.

Speech therapy

Dramatic expression offers many benefits to the physically limited. It affords an opportunity to expand vocabulary since children learn to contribute to the thinking and planning of the group. In addition, it enables the nonreader and the shy or withdrawn child to participate. Furthermore, children have an opportunity to enact their own experiences, imitate adult activities, and play make-believe.

Participation in an auditorium play can be a highlight in the life of a handicapped child. He learns to adjust to a social situation, to share ideas and materials, and to control situations with words. It also affords an opportunity for role-playing. Since the program gives the others an opportunity to see what the handicapped child can do, it builds rapport for him and may give him needed status. Many schools have a ramp at the back of the auditorium so that a child in a wheelchair can have easy access to the stage.

Written Communication

Writing ability is closely related to the child's ability in other areas. Every child has opportunities to express himself through creative writing, letter writing, or factual writing. Letter writing is encouraged as a practical form of writing for the health conservation class children. They write

thank-you notes for presents, get-well messages to their classmates, invitations to a party, or business letters ordering items from a catalogue or department store.

Spelling

Groups for spelling will be based on the children's readiness for formal spelling and on their spelling levels as indicated on their achievement inventory tests. Some children in health conservation classes require a typewriter for spelling work and tests. Modifications in time allotted for completion of tasks applies to spelling as well as to other areas.

Using the typewriter

Handwriting

Learning to communicate with others is one of the most important skills that children gain in school. Children are taught to speak and write in order to express ideas.

Children are usually taught manuscript writing in grades one and two. However, brain-injured and cerebral-palsied children are sometimes

taught cursive writing first. The spacing of the letters in manuscript writing is difficult for these pupils. Perception of a word as a unified whole is aided when the letters of the word are actually joined to form a whole. The change from manuscript to cursive writing is not easily achieved because of the tenacity with which established motor patterns are retained.

Readiness for handwriting requires control of the body, particularly eye, hands, and arm. Some pupils have good muscular coordination and are able to begin formal instruction when they enter school. Others have to develop physical and psychological readiness for writing.

The teacher should provide ample opportunity for children to use large body muscles in all types of games, rhythms, and physical activity and to develop the finer muscles of the hand and arm as the pupils manipulate big brushes, scissors, blocks, finger paints, clay, and puppets. The children should be allowed to experiment with chalk on the board and use large crayons on large sheets of unruled paper. Holders for the crayons or rubber sleeves made by slipping rubber tubing over the crayons (for the cerebral-palsied students who grasp so tightly that the crayons break) may be necessary.

When children can read the words they are expected to write, they are ready for writing. Those who can neither see letters nor see the differences between letters need constant help in learning to make simple strokes and forms at the easel, at the chalkboard, or in the clay pan. Very distractible children may need to copy lines with a stylus or orange stick in modeling clay rolled out in a pan. Others may have to trace patterns of straight line and simple geometric designs, as seen through onionskin paper.

A functional approach is used in the teaching of writing. The teacher selects those words which children use most frequently in writing about their class activities. The letters *i, l, t, o, d,* and *c* are recommended for most children as beginning letters. However, teachers of children with cerebral damage find that *m* is the easiest letter to teach first, then *i, u, w, t, s*. The most difficult letters for those children are *a, o, d, c,* and *g*.

Alphabet charts in both manuscript and cursive style should be part of classroom equipment. Individual name cards should be made by the teacher for each child. Children with poor arm or hand control are sometimes helped when the writing paper is anchored to the desk or table with masking tape. The pencil may have to be built up by inserting it

in a ball of clay or a rubber sponge. This "collar" is cut down as the child's ability to grasp the pencil is increased.

The health conservation class teacher meets as many left-handed pupils as other teachers because of the possible compensation for a right-sided disability. It should be remembered that the disadvantages of left-handedness are superimposed on a child with other physical limitations so that the child's problems may be compounded. Usual rules for teaching handwriting to left-handed children pertain, but many children with hand deformities or incomplete muscle control are able to work out their own best accommodation, and the teacher can be guided by these pupils.

MATHEMATICS

Understanding mathematical concepts and relationships is of primary importance and precedes computation skills and the mastering of number facts. If number concepts and relationships are to be made meaningful, they must grow out of the child's own experiences. Health conservation class teachers should provide many situations for the development of numerical concepts. Games involving "counting off," setting places for snack time, playing house, playing store, and block building are helpful.

In order to bridge the gap between concrete and abstract aspects, many illustrative and representative materials are used. In addition to discs, beads, ten frames, and squared materials, teachers of physically limited children favor such devices as magnetic discs and magnetic boards which are easily handled by the child and less likely to fall off desks. Structural arithmetic programs such as those involving the use of Stern materials or Cuisenaire rods have been found useful.

ART

The art program emphasizes individual experimentation with materials rather than uniform standards of art. The general objectives are emotional stability, mental growth, and manual competence — all important considerations for the physically limited child.

The art program develops personal taste and artistic judgment and provides an atmosphere of relaxation. It satisfies the constructive needs of the child and helps him develop the ability to plan for himself.

Originality and creativity, which should be encouraged, are fostered by having pupils illustrate scenes from books or their own experiences.

Use of concrete materials in mathematics

The whole class can work together when the pupils are working with crayons. Painting or clay modeling are best introduced to small groups and individuals. Small table-size easels are practical for many handicapped children because they do not have to stand up. Boards or cheese boxes with cutouts for small jars of paint help prevent paint from being spilled. Cans are used for the brushes.

All pictures are hung where children can see and enjoy them. Picture displays are kept up to date. Children are allowed to help with choosing and arranging, and every child is given an opportunity to exhibit his work. Parents are invited to enjoy the results of their children's creative talents.

MUSIC

All aspects of the music program are presented in pleasurable and meaningful experiences. Children have many opportunities to interpret what music suggests. They enjoy song games and folk dancing. Even children in wheelchairs can do square dancing. They play in the rhythm band.

Learning to play an instrument through group instruction develops music skills and provides the child with a social experience as well as with an emotional release. Tonettes, recorders, bells, triangles, wood blocks, and tambourines are used to develop rhythm concepts and foster music appreciation. This simple instrumentation also provides incidental physical therapy through arm, hand, and digital exercises.

Opportunities for classroom singing are provided during the day. With the children's help, the teacher selects rote songs from appropriate music texts and record albums. Songs are correctly pitched with the aid of a pitch pipe or piano.

Listening experiences help the children develop sensitivity to sounds in the environment and identify tones and instruments. Listening experiences also stimulate the imagination, increase discrimination, and help overcome some of the auditory perceptual problems of many neurologically impaired children.

Vocal expression

PHYSICAL ACTIVITIES

Children with physical limitations can often participate in the same type of activities as those enjoyed by their nondisabled peers. However, the teacher is aware that modifications are sometimes necessary and require some teacher-pupil ingenuity in adapting regular games to the limitations of the handicapping condition. Opportunities to participate with a group in games, athletics, and dancing protect the child from a feeling of incompetence and provide the joy and satisfaction so essential to the growing child. The child also gains a knowledge of his functional capacities, one which can assist him in developing a positive attitude toward his limitations.

After consulting medical personnel, the teacher becomes acquainted with the physical capacity of the child and with aspects of his emotional makeup. She is concerned with guiding him in the choice of worthwhile, healthful physical activities appropriate to his developmental level, varied abilities, and limitations. Adaptations of the program of physical activities to each child's abilities and limitations require observation of the behavior and reactions of each child during and after the activity. The teacher should be alert to signs of fatigue, pallor, breathlessness, unduly flushed face, and overexcitement. The child should be allowed to rest at his own discretion. However, the child who seems chronically tired may need a medical review.

Planning the Program

The program of physical activities should be planned to provide a balance of activity and rest, to minimize fatigue by frequent changes in activities, and should be flexible enough to meet the varied needs of children. It should be conducted outdoors whenever possible. Consideration should be given to providing activities similar to those for physically normal children.

Every child should be able to participate to some extent in physical activities with his group, however severe his limitations. If he is unable to participate in strenuous activity, then acting as scorekeeper, timekeeper, or judge gives him additional opportunity for participation with peers.

At times, the problem of devising and adapting games to meet highly specific requirements calls for much teacher ingenuity. At other times, simple changes in well-known games will serve special needs adequately.

The district health education coordinator in the office of the local community superintendent is available as a consultant. The teacher who wishes additional help can ask the principal to invite the district health education coordinator to visit the school.

USE OF SPACE

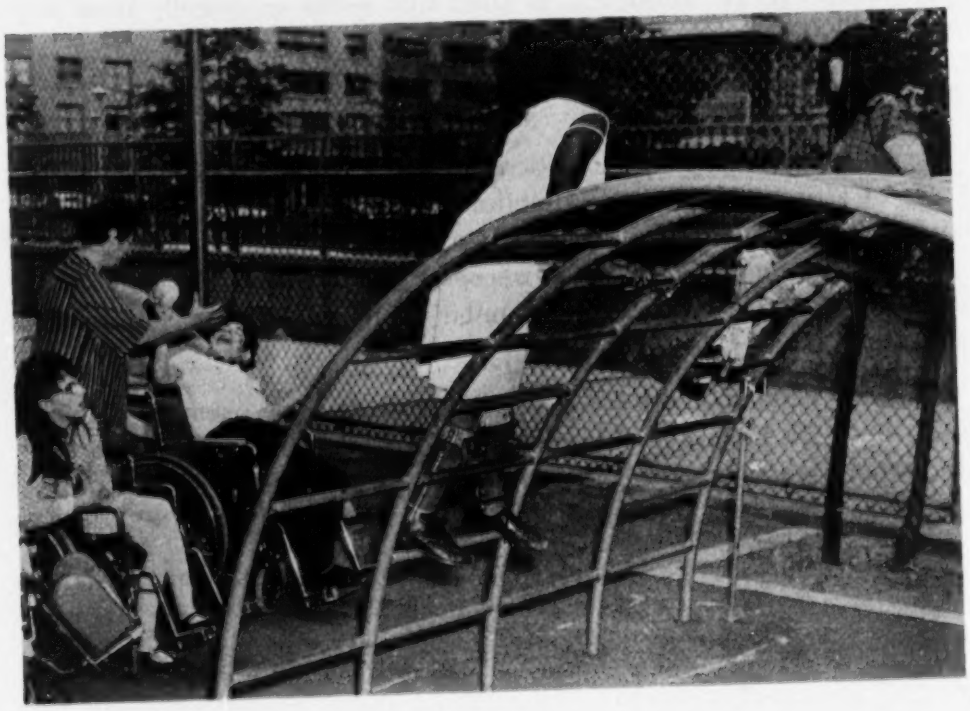
The proper use of space is an important consideration in planning any program of physical activities. Such considerations as distances between bases, around circles, from one activity to another, from one goal to another, the area of a court or field, or the length of a race may warrant modification if the activities are to be enjoyable and meaningful.

All play areas should be inspected before each use so that safety hazards can be eliminated.

TIME

Playing time may need to be limited. This can be done by allowing for shorter periods of game play and by providing short rest periods during the game. In some games, such as volley ball, it is best to plan rest periods at prearranged time intervals rather than after the scoring of a certain number of points.

Outdoor physical activities



In the rhythms or dance program, one group of children may use percussion instruments while another group performs, alternating so as to provide each group with intervals of rest. Time may also be allotted for listening to the music between repetitions of the dance.

The tempo of a rhythmic activity should be adjusted to the physical capacity of the children. Clapping of hands or tapping of feet may be substituted for repetition of steps in a dance. Four walking steps may be used instead of eight running steps, a quick walk instead of skipping. In each case, it is the teacher's task to inspire the children to perform up to capacity, never beyond.

WEIGHT

The amount of weight that must be moved, the child's own weight, and the weight of braces or equipment must be considered. Often it is difficult for a child to maintain balance where extra weight is an additional factor. There is need, therefore, for careful consideration in the choice of activities for children wearing braces or other weight-adding devices. This is especially important in such movement as climbing, hopping, skipping, and running.

In game activities, the size of a ball, racquet, the height of a net or basket should be considered so that undue fatigue or strain can be avoided.

RHYTHMS

Rhythmic activity provides emotional release and satisfaction for all children, including those with physical limitations. Simple rhythmic actions, based on the use of those parts of the body best able to function, may give adequate satisfaction because there can be some degree of success in performance. These rhythms may take the form of simple clapping or tapping to the beat of a tom-tom or triangle, as well as to the music of a piano or phonograph. Gradually, the child establishes a better response to the different rhythms, thereby stimulating his interest in music and the dance.

Rhythms that require finer coordination or that are too strenuous can be modified to meet special needs. Often, the child is able to develop his own technique or modifications.

A child who has a limitation of the lower extremities can easily participate in rhythmic activities that place emphasis on the use of the

arms. One who is below par nutritionally may enjoy rhythmic activity at a decreased tempo. Walking may be substituted for running.

The creative aspects of the program are developed with teacher guidance and encouragement. Activities such as enacting stories about firemen, policemen, the milkman, a trip to a zoo or playground provide opportunities for expression which are valuable as well as stimulating.

SONG PLAYS

Teachers choose song plays that interest the child and provide satisfaction and enjoyment. Song plays that include actions too difficult for the child and that cannot be modified easily should be avoided. It is possible to make adjustments and retain sufficient variety to stimulate interest. For example, skipping and running may be changed to walking, stooping, and standing. The hop may be omitted from the gallop. When the chorus of a song play calls for skipping around the circle and when the child has had enough activity, standing in place and humming, clapping hands, or tapping feet to the rhythm of the music may be substituted.

DANCING

Folk and square dances are recommended because the benefits derived from group participation often help the child forget his physical limitation. Learning the dances of different ethnic groups also helps stimulate an understanding and appreciation of their cultural background. Social dancing for older boys and girls provides additional opportunities for exercise, coordination, and poise.

ATHLETICS AND GAMES

Children who are physically limited may participate in many games. Play areas should have good ventilation and lighting and should be free from hazards. The safety element involved in the activity should be explained before play begins. Teachers should choose those games most suitable to the ages and abilities of the group and the facilities available.

The program in athletics and games should help the child to grow in strength and skill and to use that strength in daily living. It should also help to develop a broader range of activities related to total fitness and the maintenance of vitality. Satisfaction in participation will help build a reserve of emotional stability which will assist in helping the child adjust to his role in society.

HEALTH TEACHING

The limited concept of health as freedom from disease or from physical defects has long been replaced by a broader view of health as a state of physical, mental, and emotional well-being which enables the child to achieve great satisfaction in his personal and social life. The child who has learned to accept and to live with a disability may enjoy a fuller measure of health, happiness, and success than the so-called "healthy" child who is constantly at odds with the world.

Health teaching should be concerned with the process through which health information or knowledge is changed into desirable health practices. The approach to health teaching should be dynamic enough to capture the interest of the child and should sustain that interest long enough for good practices to be established. The stress should be on the development of an appreciation of the wonderful gift of health and on the need for learning how important it is to safeguard and maintain one's own health.

Inculcation of good health habits

In the primary grades, health teaching is essentially informal, based mainly on situations as they occur, though there are some planned activities. As the child matures, he becomes increasingly self-reliant in maintaining good health, in helping to solve his own health problems, and in considering the health protection of members of his group. It is necessary, at this stage, for the teacher to plan for more formal instruction in health education.

Health teaching for physically limited children is enhanced when the teacher is informed about each child's condition and is able to discuss it with the child in simple, nontechnical language; always, of course, in accordance with the pupil's ability to accept, understand, and profit from the discussion.

With such knowledge, children's fears and anxieties about a physical condition may be allayed. The child comes to realize the importance of the preventive and therapeutic measures prescribed by the physician and takes an active part in a plan to effect his own health improvement. Instruction in nutrition, proper rest, hygiene practices, and outdoor exercise becomes meaningful to him in the light of his own needs.

7 The Guidance Program

Guidance is concerned with the individual's total development and is inherent in all phases of the educational process. Children have numerous adjustments to make as they progress through school, and though many are capable of making these adjustments with relative ease, others, because of limited experiential background, unsatisfactory home conditions, physical handicaps, or other factors, are unable to meet the demands made of them. These limitations may result in scholastic difficulties, in behavior problems in school, in an inability to work and play with others, and in failure to develop properly from one level of maturity to the next.

The child should receive guidance from the time he enters school. The type of help offered may be in the form of individual counseling, group guidance, consultations with parents, conferences with members of the administrative staff, and referral to specialists and outside agencies.

Since the physically limited child has basically the same needs as other children, the concepts underlying a guidance program for the handicapped are the same as those in a program for the nonhandicapped. Additionally, the handicapped child often has problems related to his disability. Efforts must be made to secure maximum physical restoration by correcting or reducing the disability. Such efforts may result in frequent interruptions of the child's education. To minimize such interruptions, there is a need for a variety of special educational settings, such as home instruction and hospital and health conservation classes. The less seriously involved children may function within regular educational settings if suitable adaptations are made.

OBJECTIVES

The guidance program seeks to promote knowledge of the child in the hope that proper use of that knowledge will prevent or ameliorate per-

sonality maladjustments and will enable the child to reach his potential. Consequently, it is designed to:

- Help teachers recognize children with serious emotional difficulties so that proper attention may be given to specific needs
- Provide teachers with up-to-date guidance and testing materials
- Assist child who has learning disabilities and who may need special techniques or special placement
- Provide educational and vocational information
- Expedite transfer from one school setting to another
- Facilitate communication between home and school
- Provide parents with information about school, child development, curriculum, and health needs
- Provide supportive counseling for parent and child as necessary
- Act as liaison for special services inside and outside the school system
- Work with other departments and agencies in a coordinated mental hygiene program.

The adjustment of the child with a physical limitation requires the coordinated efforts of school, home, and community. Participation by teachers and other school personnel in community efforts to analyze and plan for needed community services will help bring about the best possible development of each child in the light of his own needs, desires, and capacities. School personnel will increasingly derive satisfaction from such services when they realize they are not working alone.

THE BUREAU OF EDUCATIONAL AND VOCATIONAL GUIDANCE

The Bureau of Educational and Vocational Guidance of the Board of Education maintains a staff of guidance counselors and coordinators to serve all schools and all children, including those with special needs. Their services are often sought by teachers of health conservation classes and by teachers of homebound children.

Liaison Counselors

Guidance counselors, specifically trained in the area of the physically limited child, are assigned as liaison between the Bureau of Educational and Vocational Guidance and BEPH. These counselors also act as con-

Discussing graduation plans

sultants to regular guidance counselors and other school personnel dealing with physically limited children in regular classes.

To assist the population served by BEPH, the liaison counselors work closely with personnel from bureaus in the Board of Education, counsel children and parents, expedite special placement, inform guidance counselors, administrative staff, and agency personnel of facilities and procedures for admission, and cooperate with a variety of public and private agencies.

On the high school level, every interested and potentially eligible student during his junior or senior year is referred to the Division of Vocational Rehabilitation of the State of New York. In this regard, the liaison counselors are particularly active with the homebound.

The following outline offers a closer look at the work of the liaison counselors in referring homebound students to the New York State Division of Vocational Rehabilitation (DVR):

1. Orientation meetings with teachers of the homebound

   Sharing of latest information on training and placement of present and former homebound students

   Explanation of procedure

   Distribution of necessary forms and materials

2. Discussion with head of the School Unit of DVR regarding cases of doubtful eligibility
3. Telephone contacts to parents and students to reinforce, clarify, and support
4. Office interviews as needed
5. Escorted visits to DVR and to Federation of the Handicapped High School Homebound Program
6. Follow-up on students who fail to keep appointments at DVR or at the Federation of the Handicapped

The services performed by liaison personnel of the Bureau of Educational and Vocational Guidance have proved invaluable in making available to large numbers of exceptional children the tremendous resources of public and private agencies in the New York City area.

THE BUREAU OF CHILD GUIDANCE

When children need a specialized review or treatment of their personal problems, BEPH often requests the assistance of BCG which provides a full range of evaluative and counseling services in the psychological, psychiatric, and social work areas. Generally, health conservation classes are provided with these services through the same procedures as those established for regular classes.

A somewhat different approach is involved in the classes for children with severe orthopedic and/or neuromuscular handicaps (HC 20 Units) and children who receive home instruction. At the HC 20 Units, a psychologist from BCG is usually assigned as a member of the interdisciplinary team and may be consulted regarding children with learning and/or behavior disorders. The medical social worker assigned to the unit by the Department of Health also works with the child and the family.

The homebound section of BEPH has a special arrangement for referral and continuing contact with BCG. A group of social workers act as liaison between the two bureaus. It should be noted that a percentage of emotionally or socially maladjusted children who are on home instruction either receive direct treatment by BCG personnel or receive periodic review by BCG if they are under treatment by another agency.

ROLE OF THE PARENT

Children of similar intellectual capacity, afflicted with the same disability, often exhibit striking differences in personality, physical and emotional adjustment to the handicapping condition, and educational achievement. Their educational progress is, to a large extent, related to parental attitudes. A child who receives the support of loving and concerned parents is better able to meet the challenge of growing up in a complex and demanding world.

Children with handicapping conditions usually require a great amount of parental time and effort if they are to attain sufficient emotional security and physical comfort. Parents who assume their responsibilities willingly and wholeheartedly are more apt to overcome adversity and to pass on to the child the kind of inner strength needed to make the best adjustment.

A dim future often becomes brighter if parents are made aware of the sources of help available in school and community. Schools have a duty to share with parents an honest estimate of a child's strengths, weaknesses, and potential. Parents have a responsibility to share with school personnel information vital to the child's adjustment and to maintain a sustained interest and involvement in the child's education. The following are examples of parental participation in the educative process as it pertains to physically limited children:

Parents join the parents association of the school to interpret the needs of their own children and to encourage the integration of health conservation classes into overall school activities.

Parent and teacher discuss the child's academic progress. They weigh the effect of the handicapping condition on scholastic achievement. Realistic short- and long-term goals are outlined.

The teacher reports to the parent any lack of pupil cooperation in self-care or use of prosthesis as recommended by the physician. Parent reinforces teacher's attempts to enlist child's cooperation.

Parents carry out the recommendations of school or treatment agency personnel regarding regular visits to the doctor, consistent use of prescribed medication, and the performance of special exercises at home.

Parents, pupil, and teacher discuss the implications of special class placement as the child moves from one level to the next. High school placement in line with the child's academic progress, physical limitations, and occupational goals is reviewed.

Parents are encouraged to become active members in organizations dedicated to the improvement of the condition of handicapped persons. Parents join with professional workers in helping to obtain legislation for initiating, expanding, or funding special programs.

ROLE OF THE TEACHER

It is obvious that a close relationship between teacher and pupil can occur when classes are small. Classes for the physically limited offer the advantage of small size. In fact, many teachers cite the ability to individualize instruction and to witness individual academic growth and social maturity as primary reasons for having entered the area of special education. Teachers of physically limited children are also afforded a better opportunity to practice informal guidance.

The guidance role of the teachers of physically limited children has changed a great deal in the last two decades. As increasing numbers of trained guidance specialists became available, the need for teachers to devote their time and energy to certain areas of guidance began to diminish. Thus, for example, one sees less stress placed upon the teacher's intimate knowledge of treatment agencies and a diminution of direct, personal involvement with those agencies.

As guidance personnel take on greater responsibilities of counseling, making referrals, and acting as liaison with community agencies, the teacher's guidance role changes. The following elements are indicative of the emphasis and direction of the classroom teacher's guidance role:

An understanding of good mental hygiene approaches to individual and group problems

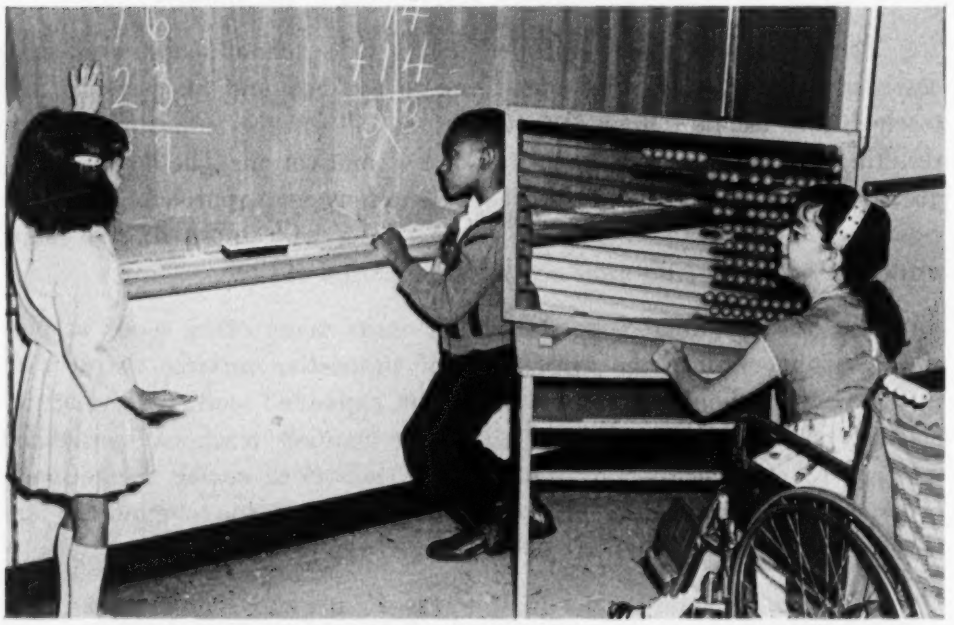
An awareness of and sensitivity to cultural, economic, social, and psychological factors which tend to penalize certain children educationally

A knowledge of learning disorders, the ability to recognize their presence and their cause and effect relationship with behavior disorders

The conscious incorporation of the elements of guidance into subject areas and activities related to daily living

An awareness of the teacher's own limitations in dealing with learning and/or behavior problems and a willingness to request assistance where necessary

A cooperative attitude toward the exchange of information with professional personnel serving a child and a willingness to incorporate suggested new approaches to the child's problems.



Playing "teacher"

Once it is recognized that a child has problems which go beyond the teacher's ability to render direct assistance, the services of other specialized personnel should be enlisted. The following description illustrates how a teacher helped to plan a program to counteract the failure and frustration of a physically limited child:

John, an eight-year-old boy with severe, chronic asthma and a history of frequent absence, entered the third grade of a health conservation class. He was obviously retarded in reading and in almost all other academic areas.

The teacher studied the child's records, discussed him with his parents and former teachers and tried to upgrade his reading. With her supervisor's approval, she referred John to the school guidance counselor since his reading did not improve. The teacher maintained contact with the guidance counselor who obtained additional information from the boy's parents and community agencies involved with him and his family. It was decided to refer John to BCG for psychological testing.

After the teacher supplied BCG with a current picture of John's performance, the psychologist found that the boy had normal intelligence; his poor academic progress stemmed largely from his limited exposure to formal education. In addition, a lack of motivation related to his illness and a depressed home environment contributed to his failure.

The psychologist recommended that a BCG school social worker be assigned to offer supportive counseling to the boy and his parents. The teacher was asked to continue efforts to fill in the educational gaps resulting from frequent absences and low motivation. The teacher was greatly encouraged by the knowledge that her own approach had been essentially correct and that her efforts, along with those of the social worker, might bear fruit after a reasonable period of time.

The description of John's situation omits many other types of possible assistance, since the availability of supportive services varies with the particular school and community. Thus, expanded reading services, including the use of remedial or corrective reading teachers, specialized material or equipment, and additional psychological, social, recreational, occupational, and health services at school or in the community are worthwhile features if they are obtainable.

It should be emphasized that it was John's classroom teacher who played a key role in recognizing the existence of a problem, initiating action, offering current information, and following up with suggested remediation.

ROLE OF THE SCHOOL

Attitudes toward handicapped persons vary a great deal in our society, but it is to be hoped that educational personnel are more accepting, understanding, and empathetic toward children with special problems. Personal feelings of revulsion, fear, or dislike for children who exhibit overt physical abnormalities are signs of immaturity in an adult just as they are evidences of uncivilized behavior in societies that reject the aged and infirm.

One of the functions of the school is to help children perceive handicapped persons as equal human beings. The attitude of the school's supervisory and teaching staff toward special classes in the school has much to do with the successful adjustment of individual children in those classes. If there is a tendency to isolate the special classes because of misguided notions of protecting physically limited children from the "onslaught"

of the more robust youngsters, or protecting the "normal" children from exposure to "unseemly sights," then both groups suffer the loss of an essential lesson in democratic living.

Every school service and activity should be available to health conservation pupils. Since physically limited children vary markedly in degree of disability, it is possible that the physical requirements of certain activities may exclude certain pupils. In such cases, adjustments can sometimes be made to enable a particular child to participate with the whole class. At other times, certain children can be included in the activity while others are excluded. One should avoid automatic exclusion of the entire group when a little foresight, consideration, and individualized adaptation might enhance feelings of acceptance and self-esteem.

Parents of physically limited children should be encouraged to participate in school activities. Such participation will help dispel feelings of isolation and reinforce a sense of belonging to the whole school.

Guidance counselors, it should be reiterated, must become acquainted with the special needs of these children. Their services are especially useful when health conservation class teachers can refer children with learning and/or behavior problems who do not respond to the highly individualized treatment usually offered in health conservation classes.

Guidance counselors are also of great assistance in articulation procedures for physically limited children entering new levels of their educational career. Through individual and group counseling, the counselors can help the student make appropriate decisions related to programs and courses of study. The counselors obtain needed information about the child's limitations from BEPH, the school nurse, school physician, and the liaison counselor for the physically handicapped. Parental desires and suggestions are, of course, solicited.

THE PHYSICALLY LIMITED CHILD IN REGULAR CLASSES

Every physically limited child who can attend school with reasonable regularity and safety and who can profit educationally without highly specialized accommodation ought to attend regular classes. The goal of regular class placement remains a constant challenge for those interested in offering physically limited children optimum opportunities for develop-

ment. The task is more easily accomplished when school personnel exhibit welcoming attitudes and are willing to make minor adjustments. Such adjustments often spell the difference between admission and exclusion from regular class attendance or between success and failure when the child is in attendance.

The following examples of minor modifications or practices help physically limited children adjust in regular classes:

1. Flexible time schedules to permit early or late attendance to avoid crowds in public transportation, halls, stairways, and elevators or to allow additional time for slow dressing and ambulation
2. Double sets of books to remove carrying difficulties between home and school
3. Curriculum adaptation, including course substitutions, to allow for physical inability to perform certain normally required tasks
4. Seating arrangement in classrooms for maximum reduction of visual, auditory, and locomotion interferences
5. Adjustments of the physical plant to provide free movement into, within, and from the school: short ramps to eliminate steps; handrails in strategic areas to assist in locomotion or toileting, etc.
6. Volunteer buddies to give physical assistance, act as scribes, furnish academic help, or just offer friendship
7. Personnel (e.g., supervisors, school health counselors, guidance counselors, grade advisers, or deans) to whom parents and children can turn for help and who can facilitate or coordinate activities of physically limited children.
8. Reliance upon qualified medical personnel for decisions regarding any activity or equipment when there is reasonable doubt regarding appropriate procedure.
9. Fostering of a school-wide attitude of open acceptance of handicapped persons.

8 Common Physical Disabilities

The concept of good health as a state of complete physical, mental, social well-being (and not merely the absence of disease) is now generally accepted. Putting this concept to work in the schools involves:

— Providing optimum conditions for healthful living in school
— Taking appropriate measures in school to identify and treat children with special health problems
— Understanding these children and their total needs
— Arranging for special services.

Common physical disabilities discussed or mentioned in this chapter include lowered vitality, nutritional abnormalities, allergies, diabetes, anemia, kidney ailments, cystic fibrosis, tuberculosis, epilepsy, heart disease, rheumatic fever, orthopedic conditions such as poliomyelitis, osteomyelitis, arthritis, spina bifida, muscular dystrophy, and those caused by accidents, and cerebral palsy.

HEALTH EVALUATION

Finding out the facts about the child's health needs requires a variety of steps and procedures. The earlier a condition is identified and diagnosed, the necessary treatment instituted, and a proper adjustment made, the better are the chances of recovery or maximum correction. Early school entrance, which is of benefit to all children, is especially important for children with physical limitations. It is recognized that children who are not learning and whose behavior deviates from accepted standards may be in need of medical attention.

The program of the Bureau for Health Education of the Board of Education prescribes daily health inspection and health day inspection procedures. Data obtained through the annual Health Day routines are noted on the child's health card.

The School Health Service of the Department of Health has important case finding, medical screening, and follow-up functions, but its ability to pick out children in need of further medical investigation and follow-up depends in large part upon the observations of the teacher in the classroom. The school physician, the public health nurse, the teacher, and other appropriate school personnel form a team within the school which serves the physically limited child. In schools where there is a social worker, she should be included.

A review of the school record card, health card, and other available records furnishes information about the child's health and emotional adjustment. Frequently, a child's physical disability, even when properly diagnosed, responds better to treatment because an alert teacher has noted unusual signs and symptoms and relayed the information to school health personnel or parents. Poor vision, hearing loss, tendency to tire easily, continued overexcitability, momentary blacking out (as in petit mal), persistent colds, and changes in behavior are common examples of complications sometimes noted by the teacher.

A medical examination is necessary for each child who shows symptoms of a health problem. Prompt medical diagnosis, analyses of causative factors, referral, treatment, and follow-up are essential. The cumulative records of each child, including data on family status and home conditions, as well as observations of health factors and behavioral manifestations, should be available to the school physician.

The parent's presence at the school health examination is desirable. However, the child most in need of health care may often be the very one whose parents are not available. In a study of the families of fifteen children in a health conservation class, only in five families was it possible for a parent to come to school. Parents often cannot come to school because of small children at home, illness, or employment requirements.

When the parent cannot attend the examination, another member of the family should be present to supplement the nurse's information about the child's health history and home behavior and to bring back to the family the doctor's findings and recommendations. In some schools, a parent substitute is provided by the Parents Association, or auxiliary school personnel may be able to help gather pertinent information.

LOWERED VITALITY

This term is used to designate the condition of a child who is physically substandard. It is a symptom of one or more conditions including malnutrition. Lowered vitality may be due to disease, poor hygiene, lack of proper parental care, bad social conditions, poor dietary habits and food inadequacies, emotional upsets, or a combination of any or all of these. Untreated disease and continued emotional disturbance may also contribute to a state of lowered vitality.

Identification, Selection, and Treatment

Since lowered vitality has many causes and many manifestations, there is no single method of identifying this condition in children. The following symptoms may be significant when taken in conjunction with other factors:

Poor color
Flabby musculature, poor posture
Tendency to tire easily
Listlessness
Short attention span
History of frequent illnesses
History of frequent absences
Failure to maintain or gain properly in weight and height

The Health Day screenings, the daily inspection routines, the health examination, the medical history, data concerning the home status and family conditions, the cumulative health record, behavioral changes, attendance, learning ability, and academic potential measured against achievement help discover children who need special health supervision. These data also contribute to the doctor's understanding of the child's condition and its causes.

Problems in Nutrition

The child who is under par, who lacks energy, drive, or zip, who is markedly over- or underweight, or who does not measure up to the standards of good health may be malnourished to some degree. It is possible to be malnourished even on an adequate diet if the body is not able to utilize consumed food, or if the requirements for some or all nutrients are increased above the normal. Sometimes, malnourishment is acute and results from a sudden, drastic reduction in intake of one or more nutrients. It may also be chronic, and result from a long period of undernutrition; of not quite meeting body needs over a period of several years. The chronic type is more common and is observed in both children and adults.

Signs of malnutrition in children are similar to those in adults, but there are some differences in onset, degree, and effect. In children, the signs are usually manifested earlier and tend to be more acute. Identical nutritional deficiencies may be more detrimental to the general health of children than to adults.

If the child tires easily, has poor posture, pale mucous membranes, bleeding, tender gums, rough, dry, scaly skin, or greasy flaky areas around nose, eyes, and ears, the condition should be reported to the school nurse and school physician.

HEIGHT AND WEIGHT

Just as children differ in ability and personality traits, so do they differ in body shape and size, general appearance, and rate of growth. Healthy, well-nourished children of the same age may vary considerably in height, weight, and body contour. Each child must be evaluated individually and his nutrition appraised on the basis of his stage of development and general health.

Pediatricians believe that the practice of using standard height and weight charts as the sole criterion for normal growth and development is outmoded. If a child seems to deviate markedly in height or weight over a period of time, it may become apparent to an alert teacher or parent who should refer the matter to a physician. The physician then seeks to determine whether or not there are any indications of abnormality in view of the individual child's history.

OVERWEIGHT

Extreme overweight is considered a type of malnutrition. The degree of overweight should be determined by the physician and measured in relation to height, body build, age, and genetic factors. A certain amount of fat is necessary as padding for the vital organs, for body contour, and as reserve for nutritional purposes. Excess fat is dead weight and influences general health, appearance, activity, and social adjustment. Increase in weight may be gradual, and the individual or his family may not be aware of the condition until it is extreme. The fat child, like the overweight adult, may be fat because he eats beyond his needs. However, the causes of overweight are varied and medical attention should be sought. Care must be taken not to institute measures simply to remove symptoms. Obesity is a problem that often requires both medical and psychiatric attention when it stands in the way of sound physical, social, and psychological development.

The greatly overweight child is awkward and is often shy or retiring. He is at a disadvantage in sports and in many group activities. He has learned to seek satisfaction in consuming large amounts of food, and when his size and ineptness prevent participation in active games, he is apt to turn to more food as a refuge.

The problem is even greater in dealing with children who have additional physical disabilities. The teacher working with obese children plays an important role in helping the child develop satisfactions other than food. The teacher can awaken interest in a hobby or provide opportunities for socializing experiences which may bring enough recognition to curtail excessive craving for food. Families and relatives tend to overemphasize the use of food for rewards and tokens of affection. The teacher can cooperate with the nurse and physician in helping the parents understand the harmful effects of dietary imbalance.

UNDERWEIGHT

Problems caused by underweight may be as serious and complicated as those caused by overweight. A lean child is not necessarily an unhealthy child and may be growing and developing in normal fashion. A child who does not grow over a period of many months or loses weight without any discernible cause should be referred to the school nurse and the school physician. However, growth, including increase in weight, is usually irregular and is linked to the developmental stages of individual children.

Uncorrected physical defects, acute or chronic illness, lack of sleep, emotional tensions, lack of outdoor play and relaxation, irregular meals, inadequate food intake, and overindulgence in sweets may interfere with appetite and may increase the requirement for essential nutrients.

It is particularly important that preadolescents who are extremely underweight or who do not gain weight properly be referred to the physician. The demands of growth at this time raise the requirement for essential nutrients markedly, and undernutrition may increase susceptibility to many diseases.

Psychological and personality factors operate to decrease or increase appetite. Therefore, it is important that established, individual patterns of food intake not be changed until the underlying causes have been investigated and analyzed. Negative or capricious reaction to food may be related to emotional factors. Attention to particular food substances is necessary, but attention to factors surrounding eating behavior may be equally vital.

The undernourished child should be protected from undue physical and emotional strain. A regular schedule of sleep, rest, meals, and play should be followed. The school program should be adjusted to his needs. For many children midmorning and midafternoon snacks will provide supplementary nourishment and help prevent undue fatigue.

Children should be encouraged to plan and participate in activities that provide desirable habits. The lunch period and snack time afford excellent opportunities for putting into practice what is being learned about food and nutrition. Since appetite is influenced greatly by emotional factors, it is important that the atmosphere of the lunchroom be relaxed and that physical facilities permit flexible groupings of children.

All who deal with children in the lunchroom should have an understanding of the factors involved in nutrition. They should remember that children differ in their likes and dislikes as well as in the amount of food which they can and should eat. They should also be alerted to the fact that specific children may have food allergies.

INDIVIDUAL PROBLEMS IN NUTRITION

The fundamental nutritional needs of all children are the same. When lack of a nutrient or group of nutrients results in a nutritional deficiency, or when inadequate intake of food causes general malnutrition, an individual diet and meal plan should be worked out. This should be done by the physician who may seek the assistance of a nutritionist or dietitian.

The child with poor food habits, who is potentially a case of undernutrition, should be the concern of parent, teacher, physician, nurse, and social worker. Many health and welfare agencies, both public and private, employ nutritionists and home economists whose services are available to the school or group undertaking a program of education in nutrition. They may serve as resource persons in using illustrative materials and teaching methods in nutrition. They may serve as consultants to school and health service personnel in helping to interpret recommendations of the doctor about food. The Department of Welfare may also arrange an additional allotment for food in families with special health needs, who are receiving public assistance.

DIET FOR CHILDREN OF LOWERED VITALITY

Because lowered vitality is a symptom, not a disease, it is affected by medical, psychological, social, economic, and emotional factors. Causes must be discovered if treatment is to be effective. Nevertheless, many children are physically below par because of poor dietary habits. Good

food selection, regular eating habits, and a proper attitude toward health are all of paramount importance.

Though regularity of meals is important, there should be sufficient flexibility to allow the family to dine together as often as possible. Three meals a day are frequently not enough to promote maximum growth and health in the growing child, and supplementary nourishment may be required. An adequate breakfast should be stressed. Midmorning milk or fruit is desirable (9:30 a.m. or 10 a.m. are suggested as appropriate times). The child should be encouraged to participate in the school lunch program. In addition, an afternoon snack of whole wheat bread with butter or peanut butter, and milk or fruit, and a bedtime glass of milk will probably give supplementary nourishment to below-par children with the least danger of decreasing their appetites at mealtime. Any snack which appreciably diminishes the appetite for regular meals is undesirable.

Recommendations of the physician for special diets should be followed. When nutritional anemia is a problem, foods high in iron should be eaten.

ALLERGY

The term allergy, which literally means "changed or altered reactivity," was originated by the pediatrician Von Pirquet. An allergic individual is one who reacts with unusual symptoms when exposed to a specific substance which can be tolerated without effect by a majority of other individuals. Allergy can be caused by various agents and may manifest itself in various forms. Hereditary factors play an important part in determining the capacity of a child to become sensitive and it is this capacity, rather than the specific illness, which is inherited. With bilateral inheritance, allergic manifestations tend to appear early in the life of the individual. The common expressions of allergy in the child are hay fever, asthma, eczema, and urticaria (hives). We do not know why an individual becomes allergic at any given time, but the reaction depends upon two basic factors. The first is a capacity to become sensitive, and the second is an adequate contact with a specific substance. While many attempts have been made to explain these allergic phenomena, the problem is a complex one, and the physiology and pathology of allergic disease require further investigation.

About 10% of the population has major allergic symptoms, a high proportion being manifested in the respiratory tract. Another 30 to 40% has minor allergic reactions. Males tend to be affected at an earlier

age than females although, as adults, more females exhibit allergic symptoms. The environment also plays an important part in providing the setting for the onset of allergies. It is important to note that a child's surroundings are made up of both physical and emotional factors and that either may be a primary agent in precipitating a reaction in an individual hereditarily predisposed to allergy.

Hay Fever

Hay fever is a seasonal manifestation of allergy characterized by sneezing, nasal discharge, and itching of the eyes, nose, and throat. The symptoms are often mistaken for the common cold. The entire reaction involves the upper portion of the respiratory tract, and, when it is severe, may also include the bronchi, resulting in asthma. A reaction is caused by the pollens of trees, grasses, and weeds, and, less frequently, by mold spores. These substances fly through the air for large distances. The most important cause of hay fever in the East is ragweed which pollinates in the late summer and fall. The child who repeatedly has colds at the start of the school term may be suffering with ragweed hay fever. Trees pollinate in the spring, and grasses usually pollinate in June. Mold spores may fly at any time during the spring to fall season. The allergic child is often irritated by chalk dust and this can bring on his symptoms.

Measures taken to prevent exacerbation of asthmatic attacks include use of dustless chalk, excused absences to permit medical treatment, attention to food sensitivity, rest periods when indicated by fatigue or drowsiness due to antihistamines.

Asthma

The allergic manifestation of most concern to the pediatrician and teacher is asthma. It is a disease marked by recurrent attacks of difficult breathing due to swelling of the mucous membranes of the bronchi, accompanied by spasm of the bronchial muscles and increased secretion of mucous.

Asthma may be caused by contact with inhalant substances such as dust, feathers, animal danders, or pollens; ingested substances such as food and drugs; physical environment factors such as heat, light, cold, and dampness; or bacterial infections, either acute or chronic. Emotional factors play a very important role in children but rarely are the sole factor in initiating attacks. Psychogenic factors often reduce the threshold of tolerance of the child so that lesser contacts with offending substances often provoke attacks. Some children eventually learn to express themselves by means of an asthmatic attack when an accumulation of anxiety

or a threatening emotional situation confronts them. The asthmatic child is often anxious and insecure.

The prevention of asthmatic episodes is best accomplished today by the elimination of the offending substances from the environment, treatment with specific substances to increase the individual's tolerance for these factors, and by the avoidance of nonspecific contributory factors, such as physical overexertion and fatigue or exposure to wind and cold. Emotional factors may require attention and treatment. The attitude of parents and siblings is very important in the total picture.

The treatment of asthma also involves symptomatic relief after an acute attack. By specific injection therapy, the frequency, duration, and severity of attacks are often altered. When treatment is successful, long periods of remission may result, but the asthmatic tendency is not cured and may be expressed when physical or emotional factors once again overwhelm the patient.

Allergic Skin Diseases

Allergic skin diseases, like *eczema* and *urticaria (hives)*, are not contagious. These skin manifestations, frequently the result of causes similar to those of the respiratory allergies, also often have a psychogenic factor as a precipitant or modifier of the condition. The eczematous child is aware of the cosmetic difference between himself and other children and psychological trauma often occurs when he is in school. The teacher is careful not to make the child conspicuous, as this may result in an increase in itching and scratching with further increase in skin eruption.

Dermatoses may result from contact with poison ivy, oak, or sumac. It would be wise to acquaint the children with the appearance of these plants before an excursion into the country and to advise them that the recommended treatment is thorough washing of the skin with strong laundry soaps as soon as possible. Also, clothes worn on the occasion of contact should be thoroughly cleaned. Other more individualized types of dermatoses occur in some allergic children.

DIABETES MELLITUS

A chronic ailment, diabetes mellitus is essentially a metabolic disturbance caused by the inability of the liver to utilize and to store sugar properly. This inability results from a lack of the hormone insulin, which is produced by the islets of Langerhans in the pancreas. Sugar and other

metabolic products accumulate, therefore, in the blood stream and are eliminated by the kidneys in the urine. This abnormal metabolism causes symptoms such as frequent urination, thirst, increased appetite (sometimes to the point of ravenous hunger), abdominal pain, and loss of weight.

The diabetic child whose disease has been recognized and treated early should not encounter serious difficulties in school placement or adjustment. The objectives of modern treatment are not only the maintenance of an adequate, safe blood sugar level maintained by diet and insulin, but also the education of the patient and his family. As soon as a child is able to understand and cooperate, he should be taught how to participate actively in the control of his disease. Specifically, he should recognize the symptoms of hunger or dizziness and assume responsibility for his injections and urinalysis. The physician should acquaint him with basic facts and procedures.

Warning Signs

If symptoms are disregarded and untreated, serious complications may develop. Extreme thirst, rapid and deep breathing, nausea, headache, and vomiting may be the immediate warning signs. If a diabetic child develops an infection or fever, or if he neglects to take insulin, he may lapse into diabetic coma. If coma occurs, first aid treatment suggests placing the child flat on a bench or on the floor, keeping him warm, and notifying a physician immediately.

Insulin Shock

If the child gets too much insulin, too little food, or if he works too hard physically, his blood sugar level may drop and he may develop insulin shock. The warning signs here are nervousness, sweating, dizziness, and hunger. This condition in its initial stage can readily be eased by orange juice, candy, or sugar. If the diabetic child complains of hunger, he should be permitted to eat. It is difficult for most persons, and even the patient himself, to distinguish between threatened diabetic coma and insulin shock. When in doubt, assume it is insulin shock and offer a sugar solution, orange juice, candy, or any other food at hand. In any case, the physician should be called at once.

For physical management, it is essential that the teacher be informed if a child has diabetes. Teacher awareness can also be helpful in guiding the youngster's emotional growth. In some cases, the child may require the close observation of a health conservation class.

OTHER DISABILITIES

The child with *anemia* or other blood disease, or one recovering from a kidney ailment such as *nephritis*, may need supervision and rest and may benefit from placement in a health conservation class.

Cystic fibrosis is a relatively new category of illness found in increasing numbers in children of school age. At certain stages of disability, many of these children can also benefit from home instruction or placement in a health conservation class.

TUBERCULOSIS

Tuberculosis is a disease which rarely affects children between the ages of 5 and 10. However, in the years that follow, during prepuberty and puberty, increasing numbers of children get the disease, which may not only be hazardous to them but to others exposed to them.

There are two types of tuberculosis. The primary or first infection type occurs when the tubercle bacilli invade the body of a person never before infected with tuberculosis. This first infection type of tuberculosis is generally benign in children of school age and is usually noncommunicable. The child may appear well and may even be overweight. Outward symptoms are frequently nonexistent, the diagnosis usually being made through X-rays and tuberculin testing. The most characteristic sign is chronic fatigue and listlessness in a child usually alert and active. As a rule, with proper care, there is complete recovery in one to two years after infection. Primary or first infection type may or may not require treatment in the hospital, depending on the home situation.

The second and more dangerous type of tuberculosis is the reinfection type where the tubercle bacilli invade tissues of a person already sensitized by a previous infection of the disease. This type of disease is most likely to develop during the years of puberty or later, but may occur earlier. Unlike the primary type of tuberculosis, the reinfection type is often hazardous and communicable. Its symptoms may be detected by the observant teacher or parent. Blood streaking or frank hemorrhage are signals for immediate medical attention. Chronic cough with loss in weight, poor appetite, and general fatigue are symptoms of the reinfection type of tuberculosis, usually requiring a long stay in the hospital. Plans for education of the child during this treatment period are an essential part of his rehabilitation.

Diagnosis

The most valuable procedures in the diagnosis of tuberculosis, particularly in children, are the tuberculin test, X-ray, and sputum examination. A tuberculin test is usually performed in one of two ways. In the intracutaneous method, an injection of dilute type tuberculin (a sterile extract made from tubercle bacilli) is made into the superficial layer of the skin of the forearm. In the second method, a patch test is performed by applying to the skin of the forearm or the back of a small piece of adhesive to which have been attached squares of filter paper saturated with tuberculin and then dried. The tests are read 72 to 96 hours after application. A positive reaction indicates that the person's body has at one time or another been infected with a tubercle bacillus. It does not tell whether the person has the disease. This can be determined only by X-ray and further clinical examination. Every child reacting to the tuberculin test must be X-rayed to determine whether he has contracted tuberculosis. Whenever X-ray changes in the lung are observed, examination of the sputum or gastric contents for the tubercle bacillus is essential.

A child with only a positive tuberculin test or with X-ray evidence of a healed tuberculosis lesion may engage in normal activities with his peers. The child should receive X-ray examinations at periodic intervals as advised by the physician.

Under certain circumstances, a BCG (bacillus Calmette-Guerin) vaccination may be recommended for children exposed to tuberculosis. This vaccine, composed of a much weakened strain of living bovine tubercle bacilli, has proved to be completely safe and usually produces a tuberculin sensitivity of the tissues of persons inoculated. In such individuals, the negative reaction to the tuberculin test is converted to a positive reaction. It is generally believed that a person with a positive tuberculin reaction has a greater degree of protection against exposure to the tubercle bacillus than a person with a negative tuberculin reaction, particularly during adolescence and adult life. In this way the vaccine probably confers a partial immunity, but the degree of protection and its duration are still undetermined and the use of the vaccine has been limited to special groups.

School Placement

A child with the primary type of tuberculosis infection should attend school only with the approval of his physician and the Bureau of Tuberculosis of the New York City Department of Health in accordance with its regulations and the Sanitary Code of the City of New York. The

child's activities should be in accordance with the physician's recommendations.

A child with the active form of reinfection tuberculosis should be excluded from school since his presence constitutes a danger to his fellow students and teachers. The chronic character of this type of tuberculosis requires a long period of treatment and institutional confinement. The child is usually able to resume his educational pursuits gradually before he is ready to leave his bed and the institution. When a case of active reinfection tuberculosis is discovered in a classroom, the situation should be discussed with the school nursing service, school doctor, or district health officer who will arrange for indicated tests of other pupils.

Follow-up

A child who has been excluded from school attendance for tuberculosis in accordance with the provisions of the Sanitary Code is not allowed to return to school until authorized by the Department of Health. Planning the educational program based on medical recommendations is particularly important in follow-up care. Through frequent conferences with the public health nurse who is in contact with the home and the physician treating the case, the parent and others should keep the teacher informed of the child's health needs. School guidance counselors and teachers plan the schedule of scholastic and recreational activities in relation to the student's physical limitations. This may require many adaptations of the student's program. Decisions regarding the kind and the amount of activity considered safe for a particular individual are the responsibility of the physician treating the child.

It may be necessary for the teacher to help classmates adjust to a child returning to the classroom after recovering from tuberculosis. If classmates appear to reject or avoid the child, the problem should be recognized by the teacher. She should discuss it with the medical authorities responsible for the care of the child, and appropriate plans should be made to meet it.

Health Care of Teachers

The necessity for adequate protection of teachers engaged in the instruction of tuberculous children has been fully recognized. Regulations have been drawn by the Board of Education and the Department of Health to make this possible. Teachers are not expected to instruct infectious cases of pulmonary tuberculosis in the hospital or at home. All

teachers engaged in the instruction of children with tuberculosis are expected to present a positive reaction to the tuberculin test. The superintendents of involved hospitals and the medical administrative staff of the Bureau of Tuberculosis of the Department of Health are available to advise teachers on questions which may arise in regard to their own health. In addition, the district health centers of the Department of Health and the local tuberculosis associations in each borough will gladly answer questions about tuberculosis and make materials available for the use of teachers.

EPILEPSY

Epilepsy is defined as a recurrent loss or impairment of consciousness which may or may not be accomplished by muscular movements ranging from slight twitching of the eyelids to convulsive shaking of the body. It is a symptom of some disorder of the nervous system, the exact nature of which may not be discovered even in the fullest medical study.

In most cases, whether or not the cause is determined, medication does control the attacks so that the children can continue school. Moreover, they can learn to live relatively normal lives as adults. Medical care is therefore the primary requirement for patients with epilepsy. The teacher should be certain that the child is known to the school nurse or school physician so that adequate medical care may be insured.

The vast majority of New York City children who have or have had convulsive seizures attend school, usually in a regular class. A relatively small number of children with serious and frequent seizures may require home instruction. The School Health Service is chiefly concerned in assuring that epileptic children are under regular medical supervision and that they are not overly restricted in their activities. Except for reporting the condition, and maintaining confidentiality, the procedures for children with epilepsy are no different from those for any other long-standing medical condition.[1]

Types of Seizures

Grand mal: This attack consists of loss of consciousness, tightening of muscles, and falling to the ground, followed by convulsive movements.

Petit mal: This type, which occurs more frequently in children than in adults, consists of a momentary blackout during which there may be a

[1] Department of Health, City of New York, *Manual of Procedures* (New York: The Department) 1965, p. 82.

brief, fixed gaze or a brief, rhythmic twitching of eyelids or other facial muscles.

Psychomotor: The attacks consist of clouded consciousness with automatic patterned movements often followed by brief periods of amnesia.

Teacher Information

A medical report can always be secured by the school doctor or school nurse and interpreted to the classroom teacher. It is important for the teacher to know the nature of the disorder for the specific child. Answers to the following questions may be helpful: What kind of seizures does the child have? How frequently does the child have episodes which are different in character from the more familiar grand mal and petit mal attacks? Is there likely to be an aura (warning) before an attack? Do attacks occur only at night, or only at home? What medication does the child receive? Are there side effects from the medication which should be reported? Some toxic side effects may be evidenced by impaired gait, poor coordination, lack of alertness, skin eruptions, and swelling of the gums. Some may be related to specific drugs.

The teacher should also know what limitations should be imposed on the child. Restrictions should be kept to a minimum. The usual restrictions are avoidance of hot equipment, power machinery, and climbing to a height as in rope climbing. Even these precautions may be declared unnecessary by the child's physician when the illness is adequately controlled. Swimming is usually permitted as long as there is adequate supervision.

When a grand mal seizure occurs, first aid includes loosening tight clothing around the neck and wrists and removing any furniture which the patient could strike in his convulsive movements. Generally, the patient should not be moved; he will recover spontaneously. In those unusual instances in which convulsions are prolonged, it is wise to seek a physician's assistance. After a spell, if the patient wishes, he should be allowed to rest or sleep until fully recovered. Most patients have a definite pattern to their seizures so that the characteristic behavior is likely to be repeated. When a teacher knows that one of her pupils has a history of epilepsy, she should secure more specific recommendations on first aid from the school doctor.

The teacher should make every effort to be calm when a child has a seizure in order to prevent hysterical reactions by the other pupils.

Psychological Problems

Adult and peer anxiety, which often surrounds the child with epilepsy, influences the development of the child's personality. Many children tend to develop a withdrawn personality and isolate themselves from group experiences. On the other hand, some children develop aggressive or hostile behavior patterns as a reaction to their environment.

Those who deal with the epileptic child should make every effort to prevent tension-bearing situations which may precipitate attacks. Excessive anxiety shown by adults and pressures to achieve beyond the child's capacity may actually precipitate seizures.

Recognition of the complexity of the epileptic child's psychological problems may enable the teacher to deal more effectively with him. Clinical help at BCG or under other auspices should be provided when necessary.

HEART DISEASE, RHEUMATIC FEVER

Research and experience have taught us a great deal about the everyday management of children with heart disease or with a history of rheumatic fever.

Most children identified as cardiac in the New York City schools attend regular classes. They fall into one of the following diagnostic categories:

1. Undiagnosed manifestation (formerly called Possible Heart Disease)
2. Congenital heart disease
3. Rheumatic fever
   a. Rheumatic fever—no heart disease
   b. Rheumatic heart disease
4. Others
   a. Subacute bacterial endocarditis
   b. Other less common kinds caused by diphtheria, syphilis, anemia, or hyperthyroidism, etc.

Undiagnosed Heart Disease

A physician temporarily classifies a case in this category because of an atypical finding which he is reluctant to dismiss. The finding may be an

isolated abnormal laboratory report or a physical sign which requires further study. A more definitive diagnosis is reached upon reevaluation of the child at a 6-month or 12-month interval. Meanwhile, the child is kept under observation for that period, but, in most cases, he requires no limitation of his activities.

Many children acquire the erroneous diagnosis of heart disease when a functional or innocent murmur is heard. A murmur is an extra sound between the two normal beats. The characteristics of the murmur determine heart disease. By far, most murmurs in children's hearts are not caused by heart disease but rather by the way the normal heart functions. These are innocent or functional murmurs. No continuing cardiac supervision is indicated; such children do not have heart disease and should not be limited in their activities.

Congenital Heart Disease

Many kinds of congenital heart defects exist. They result from a flaw in the development of the heart or the great blood vessels during fetal life. The defects are present at birth but may not be detected until later on in infancy or childhood. The abnormality may vary from mild to severe. Some children are never handicapped by their defect; there may be little or no limitation. In a few young children with signs of a congenital defect, the abnormal finding disappears as they grow older. Some heart defects can be improved by surgery, and some can be cured. Not every child with a congenital heart defect needs surgery.

A doctor's recommendations regarding restriction of physical activities in congenital heart disease should be followed. Most of those with impaired heart function will limit their own activities when necessary. Those who tire easily are aware of fatigue and limit themselves by naturally slowing down. Nagging or imposing additional restrictions is unnecessary and harmful. The child should be permitted to lead as normal a life as possible.

When a child has had heart surgery, the teacher should know the doctor's recommendation for activity. This information should come to her via the school nurse. Some children may require physical limitations before and after surgery because the condition may only have been improved but not cured. In cases where a complete correction of the defect has been accomplished, the surgeon may not want the child to take part in strenuous exercise until three months after the operation. By then, his recommendation may be for regular full activity and this directive should be encouraged and followed.

Frequently, children have to be hospitalized for short periods for diagnostic tests, such as cardiac catheterization and angio-cardiography, to decide whether or not surgery will help them. When the heart is catheterized, a very fine plastic tube (catheter) is passed through a vein in the arm and on into the heart; measurements of pressure and oxygen content are taken at strategic points in the great vessels around the heart and in the auricles and ventricles. Simultaneously, a fluoroscopic view of the path of the catheter is obtained and, in addition, X-ray pictures for study later. Angio-cardiograms are X-rays taken while dye is circulating in the chambers of the heart. These techniques are done to clarify the type and position of the heart defect. Elective hospitalization should be timed by doctor and patient to avoid conflicts with Regents week or similar important periods. Academic programs should be modified with caution when hospitalization is anticipated because frequently the hospitalization does not materialize and an opportunity for academic progress is lost.

Rheumatic Fever

Rheumatic fever is an inflammatory disease which may affect any part of the body, including the heart. It is precipitated by, although not directly caused by, a streptococcal infection, manifested usually by a sore throat or scarlet fever. When there are overt symptoms and signs of rheumatic fever, the illness is termed "active." When these characteristics have subsided, the disease is "inactive."

Many diseases confer immunity, but rheumatic fever confers none. On the contrary, the patient is somehow made even more susceptible to repeated attacks. First attacks usually occur between the ages of six and ten. Recurrences are most frequent during the first five years after the initial episode, less common during adolescence, and rare in adult life. Rheumatic fever tends to run in families, but it is not contagious. Despite research, no specific diagnostic test exists.

The illness may be dramatic in onset with painful swollen joints, weakness, grimacing, and purposeless movements. It is almost always associated with fever, fatigue, and a feeling of malaise. It may begin with inflammation of the heart (carditis) which is confirmed by a physical examination and laboratory tests. Involvement of the heart and the danger of resultant permanent damage make the disease assume its great importance. One in three children is left with heart damage after a first attack. The risk of heart damage is present with each subsequent attack.

While an attack of rheumatic fever may be mild and of brief duration, it may also last many months or occasionally several years before the "active phase" has completely subsided. Although some children may be out of school for only a few weeks, the majority are treated in the hospital, convalescent home, or both, for several months. Even though teaching is done in these institutions and at home during convalescence, there is an obvious interruption of normal school life.

Prevention of further attacks is the primary concern of medical management. Children who have already had an attack of rheumatic fever are kept safe from streptococcal infections and consequent recurrence by taking regular medication while they are well. Penicillin, either by mouth each day or by monthly injections, is one method frequently prescribed. Sulfonamides, or other antibiotics, taken orally daily are other common preventive medications. Such prophylactic regimen is advised for an indefinite number of years, perhaps for the entire lifetime, especially for those with heart disease.

A common problem is that children forget to take daily medication and then streptococcal sore throats may occur. Prompt and vigorous treatment with antibiotics, instituted at such times, may prevent recurrent rheumatic fever. Such treatment of any streptococcal infection in a child may even prevent the first attack of rheumatic fever.

RHEUMATIC FEVER—NO HEART DISEASE

This is the classification used for children who have had rheumatic fever with no evidence of residual heart damage. In the absence of further attacks, most children continue to have normal hearts through adult life. In rare cases, however, signs of heart disease may appear later, and the danger of a recurrent attack with heart damage exists. Participation in a full regular physical program in school is indicated except perhaps for temporary modification of physical effort during the first 6 months after the acute illness.

RHEUMATIC HEART DISEASE

When the heart is permanently damaged by the inflammatory process of rheumatic fever, the result is called rheumatic heart disease. Examination of the heart reveals a murmur, indicating heart valve damage, and there may be enlargement of the heart. Severity of heart disase varies and cardiac status may change more than once in the lifetime of the patient.

Once the active phase of rheumatic fever has subsided, participation in full or almost full school programs is commonplace, notwithstanding the presence of some heart damage. A physical handicap from severe heart damage (or organic heart disease as it is also frequently called) is infrequent in school years. It is usually as the patient grows older and into adulthood that the heart damage progresses significantly enough to be a real physical handicap.

All patients with rheumatic heart disease should have periodic cardiac checkups. Respiratory infections should be treated promptly and prophylactic drugs against streptococcal sore throats should be used. When the doctor prescribes normal activity, it is as important to see that his instructions are implemented as when he prescribes limited activity.

Others

Bacterial endocarditis may be encountered in childhood. In individuals with rheumatic or congenital heart disease, bacteria may lodge on the heart valves or on the lining of the heart during bacteremia. (The invasion of bacteria into the blood stream is called bacteremia.) This is likely to occur after dental extractions, treatment of infected teeth or gums, removal of tonsils and adenoids, or after certain surgical procedures. Since patients with rheumatic or congenital heart disease are vulnerable to bacterial endocarditis, such patients should receive large doses of antibiotics (in addition to the regular daily doses of prophylactic medications) when they are subjected to any of the above procedures. On only rare occasions does one see a child with heart disease associated with anemia (especially sickle-cell anemia), viral myocarditis, diphtheria, syphilis, or hyperthyroidism.

Cardiac Diagnosis and Classification

Physicians use a diagnostic system of four parts to describe cardiac disease:

1. Etiology: What has caused the heart disease?
2. Anatomical: What changes in structure of the heart have occurred?
3. Physiological: What changes have occurred in the way the heart functions?
4. Functional and Therapeutic Classifications: What are they?
   a. *Functional Classification:* How well does the patient's heart function? How much does the patient feel he can do physically?

      Class I
      Patients with cardiac disease without resulting limitations of physical activity. Ordinary physical activity does not cause undue fatigue or other symptoms.

Class II
Patients with cardiac disease resulting in slight limitation of physical activity. They are comfortable at rest. Ordinary physical activity results in fatigue, palpitation, dyspnea or angina pain.

Class III
Patients with cardiac disease resulting in marked limitation of physical activity. They are comfortable at rest. Less than ordinary physical activity causes fatigue, palpitation, dyspnea or angina pain.

Class IV
Patients with cardiac disease resulting in ability to carry on any physical activity without discomfort. Symptoms of cardiac insufficiency or of the anginal syndrome may be present even at rest. If any activity is undertaken, discomfort is increased.

b. *Therapeutic Classification:* How much activity does the doctor recommend?

Class A
Patients with cardiac disease whose physical activity need not be restricted in any way.

Class B
Patients with cardiac disease whose ordinary physical activity need not be restricted but who should be advised against severe or competitive efforts.

Class C
Patients with cardiac disease whose ordinary physical activity should be moderately restricted and whose more strenuous efforts should be discontinued.

Class D
Patients with cardiac disease whose ordinary physical activity should be markedly restricted.

Class E
Patients with cardiac disease who should be at complete rest, confined to bed or chair.

The cardiac diagnostic system may become a problem to teachers and guidance personnel when the *functional* and *therapeutic* parts are reached. The assignment of this classification to a patient depends upon the physician's interpretation and judgment rather than upon objective tests. Also, the status of the patient may well vary from time to time, causing a change in classification of the patient periodically.

PHYSICAL NEEDS

New knowledge about rheumatic fever has changed the emphasis from limitation of physical activities to the prevention of rheumatic fever or its recurrence. The main stress, therefore, is on continuity of prophylactic

medication rather than on limiting physical activities. Most children who have heart disease can take part in the normal activities of the regular classroom. A small proportion of children will require program modification because of severe heart disease. Requests for temporary modification of a child's schedule are often made because of a recent attack of "active" rheumatic fever or following surgery for congenital heart disease.

Physical adjustments may include the following: no physical training, no competitive games, extra books, elevator pass, bus transportation, permission to arrive late, rest periods, mealtime adjustments, and a shortened school day. Adjustments should be requested and granted for specified periods of time (from a few weeks to not more than 6 months). They should be terminated or renewed thereafter depending upon the recommendations on the latest cardiac report.

The element which physicians want to exclude from physical activities when they exclude competitive sports is the physiological strain and excitement of high competition. Current physical fitness programs which impose consecutive performance of a number of specified calisthenics such as push-ups in order to pass gym are undesirable, creating as they do the strain to finish and succeed.

A crisis caused by heart disease is extremely unusual in the classroom. Should any such episode occur, calmness and swiftness in getting the student out of the room and under medical supervision will help allay further upset of the patient and his classmates.

EMOTIONAL AND PSYCHOLOGICAL NEEDS

Psychological and emotional problems caused or intensified by heart disease may cause an additional handicap which may exceed the physical handicap in importance.

The psychological needs of well children are many and varied, affecting as they do, development of personality and character. Basic needs which must be met include love, approval, acceptance, and freedom from fear, humiliation, and guilt. When chronic illness occurs, the needs become more numerous and complicated.

Undesirable behavior patterns already existing in children and their parents may be intensified. As the overprotective mother usually becomes even more solicitous, the child can become more dependent and less effective. On the other hand, parental rejection may occur either consciously or unconsciously out of impatience caused by the illness. Patient and parents often have guilt feelings and fear of death.

EDUCATIONAL ASPECTS

The child who has had rheumatic fever or heart disease frequently reveals a paucity of past experiences to equip him to capitalize on learning opportunities in school. Often retiring and insecure, he requires positive support in the classroom tc foster self-reliance and self-confidence. The acquisition of a sound education is important for all young people, but it is of special significance to the student with heart disease. Vocations of a sedentary nature are often required, and success depends a great deal on the development of mental assets.

Boys and girls with heart disease may develop poor attitudes toward school. Frequent or long absences may cause students to return to school discouraged, insecure, and overage for grade. Failure or fear of failure may dampen the desire to remain in school. Special counseling may be needed to encourage the child and to interpret realistic goals and sensible management of the disability.

Not every child reported by his parents to have a heart murmur has heart disease. A majority of children of school age have at one time or another an innocent murmur that has nothing to do with heart disease. Teachers should obtain, through proper authority, a definite interpretation of limitations for any child labelled "cardiac."

Children are best served in schools with health services that include the Department of Health school doctor, school nurse, and Board of Education health counselor. Many schools have insufficient personnel for such consistent coverage. Because it is often concealed or less visible, a cardiac handicap frequently comes to the attention of school personnel after review of the school record or health card. Ideally, a proper school health program would identify students with heart disease or a history of rheumatic fever and channel them for special guidance in health, academic programing, and vocational goals.

In addition to instruction in regular academic subjects, the teacher stresses learnings in such areas as rest, proper diet, medical and dental supervision, proper attire for varied weather, avoidance of chilling, and the use of medication as directed.

The teacher has more frequent contact with the child than the nurse and can observe signs of good health and vitality or signs of poor health. Observations should be conveyed to parents and nurse for evaluation and follow-up.

The teacher may notice certain patterns of absence and should explore their causes. Absence to attend clinic or because of very bad

weather should be treated with understanding and leniency. When a child is at home or in the hospital, letters from classmates and the teacher may do a great deal to bolster the morale of the patient.

COMMUNITY SERVICES

The Department of Health maintains Cardiac Consultation Clinics in each borough. Students may be referred by private physicians or Department of Health physicians for an opinion concerning the presence of heart disease. The consultation is free of charge. In addition to examination by a cardiologist, laboratory work is done and an opinion given at that time about the cardiac status.

A few of the many services available for children with heart disease follow:

1. Medical rehabilitation offers financial assistance through the Bureau for Handicapped Children of the Department of Health for hospital and convalescent care and cardiac surgery in participating hospitals.
2. The Department of Health provides prophylactic antibiotics free of charge where needed.
3. The New York Heart Association's community program provides information, referral service, and has helped stimulate the development of community services for patients with heart disease.
4. Irvington House provides convalescent care for cardiac children.

ORTHOPEDIC CONDITIONS

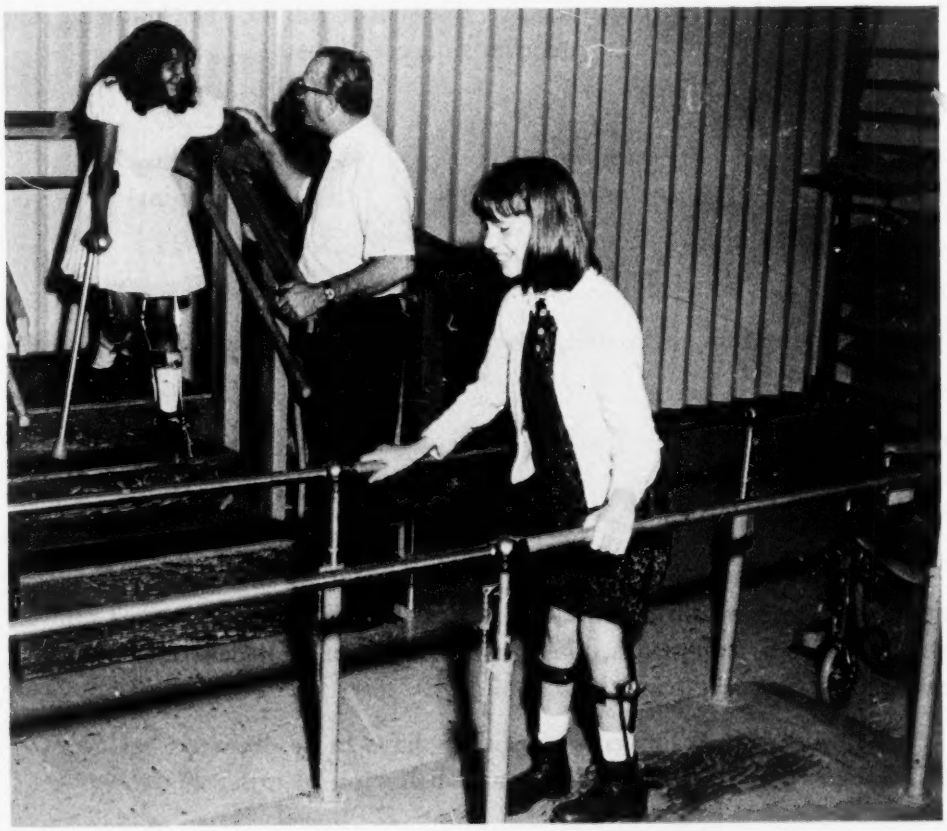
Most children with orthopedic conditions are known to hospitals, clinics, and the school health service. However, there may be children in the school who have not been referred to the school health service. Therefore, it is important that school personnel be alert to the signs and symptoms which indicate possible reasons for referral. The child should be observed at rest and in activity to detect any of the following:

Head habitually held to one side or forward
Chest depressed
Rounded back; shoulder blades protruding
Unevenness of shoulders
Abdomen relaxed and protuberant
Deviation or curvature of spine
Sideward list of trunk

One hip habitually more prominent than the other
Continuous slumped position
Bowing legs
"Knock" knees
Ankles turned in
Painful feet
Restricted, uncoordinated, or awkward use of body or part of it
Limp or lurch to one side or waddle
Toe or heel walking, bilateral or unilateral
Asymmetry of any part of the body
Absence of parts

Language and reading disabilities may be caused by hearing and visual disturbances peculiar to various types of cerebral palsy. Some athetoidal children are unable to hear certain high and low tones, and some ataxic children cannot sustain a normal period of close viewing of reading material.

Physical therapy



The orthopedically handicapped child has the same basic needs as other children, but his impairment may cause frustration as he struggles unsuccessfully to achieve ordinary physical tasks.

In considering the needs of a particular child, the teacher will want to know, among other things, the age at which the condition occurred, the nature of the orthopedic disability, the child's attitude toward himself and his handicap, his home situation, and the attitudes of the other members of his family and the community toward him. Like all other children, the orthopedically handicapped child reacts to his family's rejection, overprotection, hostility, or guilt. He will display behavior difficulties that stem from unhealthy family attitudes. The school setting presents a situation where, with objective understanding and acceptance, the parent and child may be guided to see themselves in more positive terms.

Special Considerations

Many children wear prosthetic devices which should be observed informally at the beginning of the day and at intervals during the day. The teacher should report difficulties to the school nurse. The following list may be helpful in guiding the teacher's observations:

BRACES

Use	Pressure points	Squealing joints
Fit	Loose or broken parts	Strapping

CRUTCHES

Use
Fit Condition of auxiliary bars, hand bars, rubber tips, and joints

SHOES (no sneakers)

Use	Broken laces
Worn-down heels and tips	Poor fitting
Worn areas due to braces	

Rest periods should be arranged to meet children's needs in accordance with teacher observation and medical recommendations. Children with orthopedic conditions, like other children, may benefit from planned rest and relaxation during the school day.

Children with orthopedic conditions have to be observed periodically for changes in physical condition and behavior in order to receive adequate, continuous care.

Common Orthopedic Conditions in Health Conservation Classes

Poliomyelitis

Drug therapy in the last few years has lessened the incidence of infection. However, a number of children still contract polio. Damage occurs to the nerve cells in the gray matter of the spinal cord, and paralysis of muscles frequently follows.

Osteomyelitis

This is an infection of the bone which may lead to crippling conditions. Antibiotics and drugs help to avoid serious complications.

Arthritis

Children with crippling arthritis resulting from an inflammation of the joints may be found in special classes. These children need rest and relaxation in order to function well.

Spina Bifida

This condition results in a defective closure of the bony spinal canal which may cause paralysis of the lower extremities and lead to a loss of bowel and bladder control.

Muscular Dystrophy

This disease is marked by a gradual degeneration of muscles. The child with muscular dystrophy is found in all sections and levels of BEPH's educational program. He takes part in as many activities as he can. The gradual loss of physical abilities may require periodic transfers to more sheltered settings.

Accidents

Children crippled by accidents are found in every phase of the program for short- or long-term special placement.

Other Orthopedic Disabilities

Other common pediatric orthopedic conditions include arthrogryposis, club foot, Erb's palsy, lordosis, Osgood-Schlatter disease, osteogenesis imperfecta, Perthe's disease, Pott's disease, and torticollis. Definitions of these conditions are in the section, Glossary of Medical Terms, page 136.

CEREBRAL PALSY

Medical Aspects

Cerebral palsy is a condition of exceptional complexity. The neuromuscular disability caused by damage or malformation of the motor centers of the brain has many manifestations. Many children show multiple defects. The extent of the disability varies widely and may affect the entire range of normal muscular activity.

There is no known cure for cerebral palsy, but there can be improvement. Progress is dependent upon the initial motor, mental, and sensory involvement, plus the personal drive of the child and the total treatment program.

Types

Spasticity and athetosis are the types most frequently encountered. Ataxia, rigidity, and tremor occur less frequently.

Spasticity is caused by an anomaly, injury, or disease which results in damage to the motor area of the cortex of the brain. Spastic paralysis is characterized by tense muscles which are extremely hyperactive and are contracted constantly to their highest degree. The limbs have a tendency to react much too strongly to stimulation, particularly to stretch, and thus cause the so-called "stretch reflex." A spastic muscle does not relax as a normal muscle would when its opposing muscle acts, but contracts instead. This extreme stiffness in the muscles of the spastic child then slows up his motions and makes them very laborious. With training, he is eventually able to accomplish desired motions with a considerable degree of accuracy.

The child who is spastic sometimes has decreased cutaneous sensation. Such a child may make little use of an arm that has fairly good function because he is unable to perceive clearly any object that he holds or grasps. It is as though he were using a hand covered with a heavy woolen glove. This may inhibit the child in the performance of many tasks involving fine motor control.

Athetosis is caused by an anomaly, injury, or disease of the basal ganglia of the brain. Since automatic control centers are located in this part of the brain, any impairment of the area will allow involuntary motions to interfere with normal movements.

Training in activities of daily living

In athetosis, when the muscles produce uncontrolled movements, they upset the child's attempts to produce and complete a conscious movement. These uncontrolled movements may result in unpleasant side effects which impede the child's progress in the most essential areas. Many children have been wrongly classified as mentally defective because of grimaces, other facial contortions, drooling, and disturbances in speech.

When the involuntary motion occurs in the legs, the child has difficulty in walking and usually some difficulty in balancing. If the arms and hands are affected, writing difficulties and other problems related to activities of daily living may occur.

The athetoidal child may have limited hearing where *pitch* rather than volume is affected. A child with this particular hearing disability misses high frequency sounds like *s, sh, ch, f, th, t, j, k* and catches the low tones $\bar{a}$, $\bar{o}$, $\bar{u}$. Many words sound alike and prevent him from understanding what people say to him. This hearing disability may cause a behavior difficulty in the classroom or give an erroneous impression of stupidity.

Ataxia is caused by a disturbance of the automatic balance control. Ataxic children do not make involuntary motions, nor are their muscles tense, but they do have a disturbance in their sense of balance. They have trouble in carrying out desired, specifically directed motions, either with their whole body—as in walking toward a particular place—or with fingers, hand, and arm movement in picking up an object. The ataxic child has difficulty in ascending and descending stairs. These children need training in eye-hand coordination through manipulative toys and materials. Their condition interferes with eating and many self-help activities. Ataxic children very often have difficulty in learning to read because of an inability to focus on small areas of reading material without becoming dizzy or nauseated. Unfortunately, the necessity to move eyes away at intervals may be interpreted as deliberate inattentiveness.

Rigidity is often the result of rather extensive brain damage, and children who are afflicted frequently have damage to the learning centers. It is more likely to affect intelligence than any of the other types of cerebral palsy. Rigidity is characterized by a resistance in the muscles which produces an effect similar to the resistance felt in bending a lead pipe. It is more clearly related to spasticity than to the other types in its effect on muscular control and its treatment.

Tremor is caused by an anomaly, injury, or disease which results in damage to the basal ganglia. It is frequently the result of an acquired brain damage caused by encephalitis. Only about five to ten percent of all children with cerebral palsy have this type. It is characterized by rhythmic, involuntary motions of muscles.

Sensory disabilities may be a serious problem for children with cerebral palsy. There is less need for modification of curriculum or special teaching techniques for a child whose only handicap is motoric, particularly if the disability is restricted to the lower extremities. A child with motor restriction in the upper extremities or sensory deficits needs the special planning and coordinated approach of an interdisciplinary team.

9 Looking Ahead

The quickening tempo of change in urban education makes it extremely difficult to forecast the role of special education in the coming decades. In fact, the present scene is so dynamic that many items in this bulletin may be obsolete before the bulletin is released.

We seem to be going through a phase of educational history wherein the gap between obsolescence and innovation has narrowed, while the range of choices has broadened. Not only must we make fast choices, but we must make them from among more alternatives than ever before. We are confronted with a staggering array of educational research, new methods and materials, new curricula, and new technological advances. If these innovations are placed in the context of the changing social and economic climate of New York City and the nation, the challenge of choice for the future becomes formidable. Special education has overcome tremendous obstacles to reach its present position. It faces the future with optimism and hope.

This chapter discusses some of the recent trends in regular and special education and outlines innovations particularly relevant to the education of the physically handicapped in New York City. Many of these items are in various stages of development or use by BEPH. They may be theoretical, experimental, in the process of adoption, or recently implemented in full.

A CHANGING POPULATION

New patterns of population distribution along social, economic, and ethnic lines are having profound effects upon the vast and complex educational system in New York City. Every area and aspect of the school scene is undergoing scrutiny in an attempt to evolve a system or

systems which will serve the present and future population of the city more effectively.

BEPH is greatly affected by the changes occurring in regular education. Since there is wide dispersal of health conservation classes in schools throughout the city, changes in school organization, experiments with paired schools, educational parks, special service, and more effective schools all impinge upon the future nature and location of special classes.

Realignments and shifts of ethnic groups on a geographical and numerical basis are producing changes in the type of pupil served by the health conservation class. Different dietary habits, different rates or degrees of physical development, and altered cultural patterns may serve to introduce new categories of diseases while increasing or decreasing the prominence of other diseases. Recent rises in the number of children with chronic asthma and greater numbers of children with sickle-cell anemia are examples of ethnic influence on disease statistics.

Urban growth, accompanied by urban decay, also gives rise to a number of problems which affect the nature and type of physical disabilities among children. Air pollution is certain to produce a rise in diseases of the respiratory tract or to aggravate the condition in those already ill. Crowded, unsanitary apartment dwelling increases the rate of contraction of infectious diseases. Crippling conditions as a result of accidents in the home and traffic in the streets have steadily risen. Governmental bodies have recently begun a concentrated attack on these problems so it is difficult to predict how many children will be adversely affected in the next decade.

We may expect that the conquest of disease by medical science will continue to affect the numbers and types of children served in health conservation classes and on home instruction. Poliomyelitis, a major category of illness among our children for so many years, is now relatively rare. Children with cardiac disease present a different picture than formerly in terms of duration of illness and nature of treatment.

It is likely that new diagnostic entities will emerge and become as familiar as some of the older ones. Cystic fibrosis, for example, was scarcely known to special education until very recently.

A phenomenon worth noting is that the opening of special classes for a specific disability can create an increase in the known number of children with the disability. When the classes are opened, attention becomes focused on the disability. An informal alert is sounded to parents, educators, and allied professional personnel to be on the lookout for

children who seem to fit into the new category. As knowledge of the existence of the program spreads, interaction between school personnel and treatment agencies mounts, referrals increase, and, suddenly, large numbers of afflicted children appear where only a short while ago there had been a scant few. The history of classes for brain-injured children illustrates this point very well.

PLACEMENT

When attempts are made to insure the best possible special class placement and, at the same time, to meet legal safeguards for the child and the school, procedures governing admissions, transfers, and record keeping tend to become complex and confusing. There is danger that continuity of education will be interrupted. However, there is also a danger of incurring damage to the child who is hastily placed solely to provide educational continuity.

In the past, when placement procedures have caused frequent or undue delays, relief measures have been sought and effected. BEPH is alert to the possible magnification of placement problems as programs proliferate and populations increase. The use of a central screening team for admission to and transfer from any area of the program offers one approach that may be adopted.

Record keeping and the evolvement of more efficient forms are likely to be expedited by means of automated equipment and computers. Savings in time, accuracy, and storage space will be effected through new organization, new techniques, and modern equipment.

In line with the belief that physically handicapped children ought to be placed in less sheltered settings or regular classes as often and as quickly as possible, a number of interesting developments are occurring.

In some health conservation classes the practice has evolved whereby children who are physically and intellectually able are sent to regular classes for a short period each day. As tolerance increases, the period is lengthened until full transfer is effected. This has occurred mainly in classes for brain-injured children, but other types of health conservation classes are adopting a similar approach, particularly in schools where there is departmentalization. Extension of this practice in carefully selected situations could result in the health conservation classroom becoming a resource room and the health conservation teacher a resource teacher.

Appropriate accommodation for physically handicapped children through new school design and new patterns of school organization increasing the amount of departmentalization would hasten the trend toward further integration of the physically handicapped child into the regular class.

ORGANIZATION

For many years, those in special education have debated the merits of central schooling versus the use of dispersed, smaller units. In New York City, there was relatively little debate as transportation difficulties militated strongly against the adoption of central schooling. Single classes or small clusters of classes in schools selected on the basis of geography and accommodation to handicapping conditions became the organizational scheme of the health conservation classes. Changing patterns of population concentration and housing, the use of hydraulic lift busses, innovations in school building design, and newer concepts of the role of special education are some of the elements that invite a reappraisal of the present organization.

While total central schooling for New York City is regarded as obviously undesirable, the notion of a greater degree of centralization of facilities for special education seems to be gaining favor. There is a discernible trend toward increasing the size of certain clusters of classes while closing down the less desirable single classes or small clusters. Thought is being given to the possible inclusion of very large clusters of classes in projected educational parks. Indeed, an educational park could contain a unit to service all aspects of special education. Central screening, easier placement and exchange of pupils, experimental classes, opportunities for teacher training, an audio-visual aid center, and facilities for vocational exploration and training are a few of the items that make a special education unit in an educational park seem highly desirable.

METHODS AND MATERIALS

Changes in the school population, school organization, and facilities serving the physically limited child can be expected to have an impact on methods and materials of instruction. In addition to ongoing research in and out of the classroom, technological contributions are changing the pace and direction of teaching and learning.

The role of the teacher in the selection of new methods and materials has expanded in the past few decades. It is likely that the trend toward greater teacher participation in the selection process will continue to grow along with the more recent movement for strong community participation in this important area.

Teachers who try to keep up with latest developments are confounded by the vast array of new textbooks, printed material of all sorts, educational games, recreational equipment, and the need to become familiar with the techniques of profitable application. Teachers in special education are expected to keep abreast of matters affecting general education as well as their own, highly specialized area. Future planning for qualitative growth in the education of the physically handicapped should take into account realistic ways of assisting supervisors, teachers, and interested community participants to sift through and evaluate the tremendous outpouring of new materials. Clearing houses and experimental centers using permanent or task force personnel are possible approaches to the problem.

Not all of the new techniques and equipment used successfully with the nonhandicapped are adaptable to the disabled child. In fact, many items that are specifically designed for special education fall far short of their stated goals and turn out to be something less than advertised. A number of recent developments with varying degrees of promise, if proper adaptations are made to meet individual situations, follow:

1. Programed Instruction

The teaching machine or the programed text can be used effectively to help physically limited children with long or frequent periods of absence from school. The child can more easily start at his present level of achievement and progress at his own rate of learning, motivated by satisfaction that he has correctly answered the early, simplified approaches to the topic under study.

In the multigrade health conservation class, programed instruction aids the teacher to individualize instruction. She is also free to engage in other teaching activities while some of her students are working independently on programed material meaningful to them.

Programed instruction has particular merit for the homebound child who must engage in independent work, for such instruction supplements or reinforces what has been gained in the relatively short sessions offered by teachers of homebound children.

2. Teleteaching

There has been a good deal of experimentation with telephone teaching for homebound students in New York City. A unique project that combines the telephone aspect with radio lessons offered by the High School of the Air for Home Instruction presents a novel approach to the problem of socialized learning for the homebound student.

There is little question that many students are stimulated to learn and derive great satisfaction from group experiences provided by teleteaching. Again, supplementing and reinforcing the work of the teacher is beneficial. Many obstacles, however, stand in the way of a general application of teleteaching in New York City, but selective use with necessary modifications has already demonstrated its merit for many homebound children.

3. Team Teaching

The aim of team teaching is to make optimal use of teachers' abilities in order to provide children with a broad presentation of instructional materials or with frequent periods of remediation as indicated by pupil needs. Ordinarily, a total team consisting of a master teacher or specialist, other classroom teachers, and teacher aides plan a work schedule that incorporates the best of each team member's talents. There is general agreement concerning the aim of team teaching, but actual implementation varies widely from place to place.

The use of team teaching in health conservation classes presents unusual problems and offers a worthwhile area for further investigation. If the team teaching were to be internalized, in the sense that only health conservation classes would participate, a very large cluster of classes would be needed in order to have a sufficient number of varied talents to form an effective team. If the health conservation classes were to join with the rest of the school in team teaching efforts, then such problems as multigrade classes, pupil mobility, and regular teacher awareness of handicapping conditions emerge at once.

4. The Resource Teacher

The teacher in the resource room offers an additional means of meeting the goal of maximum pupil participation in the mainstream of regular education. If the physical plant of the school offers sufficient accommodation to pupil mobility, then a major obstacle to the use of the resource

teacher has been overcome, and the child need not be segregated for instruction except for short periods of the day.

The resource teacher could be available for individual tutoring and reinforcement of work covered in regular classes, for individual and group guidance, for training students in the use of specialized equipment such as electric typewriters, for interpreting the problems and needs of the children to the regular class teacher, for providing rest periods for children who need rest, and for paving the way, in general, for the physically limited child to function as much as possible in the regular setting.

The Bureau for the Education of the Visually Limited has been using resource teachers in sight conservation classes for a number of years. Their experience has been generally successful and suggests the possibility of extending the practice to classes of physically handicapped children in carefully selected schools.

5. Audio-Visual Aids

The teacher is confronted by the complicated and challenging task of teaching children through an appeal to all the senses. Tools are needed to accomplish the job. The tools may be as simple as paper, pencils, chalkboards, and bulletin boards, or may be as complicated as projection machines, recorders, radio, and television. Regardless of the simplicity or complexity of the tool, there is little doubt that children learn more and remember a larger amount for a longer time when audio-visual aids are properly used.

Many physically limited children become experientially limited children because their movement is impaired or because they have suffered varying degrees of damage to sensory perception. The use of aids that have multisensory appeal is particularly important in helping to overcome deficits occasioned by the child's limited experiences.

There is an increasingly large reservoir of fine audio-visual equipment and material from which teachers and pupils may derive benefit. However, school personnel are often plagued by technical problems dealing with selection, procurement, movement, maintenance, and distribution of materials. It is to be hoped that obstacles standing in the way of effective procurement and use of audio-visual aids will be given close attention so that the expected rise in quantity and sophistication of new equipment and material will render fullest benefit to the children.

We may anticipate an increase in the amount of educational programming on radio and television in the years to come, and those physically limited children who can profit from these media are assured of an ample and rich source of learning. We may also expect a continuation of the trend toward prolific outpourings of equipment and material specifically designed or, at least, particularly suited, for children with varying types of handicapping conditions.

Problems related to the use of audio-visual aids are unusually acute in the area of homebound instruction. There is a constant search for equipment that is lightweight, compact, and easy to carry. A number of companies are aware of the large, potential market for this type of equipment and are attempting to meet the need. For example, at least one company is producing a highly portable movie projector that uses cartridged instructional film. The film runs about five minutes and can do a fine job of presenting a general treatment of a broad topic or a detailed aspect of a unit of work. No training is needed in the operation of the machine, for one simply inserts the cartridge and the machine functions. A number of teachers of homebound children are already using this projector, and it is anticipated that its use will spread to health conservation classes.

PERSONNEL

The greater role played by the federal and state governments in allocating funds for general and special education makes it possible to increase and improve services in every area. In addition to the educational aspects, a comprehensive program for the physically limited child includes making full use of supportive services provided by vocational guidance counselors, social workers, psychologists, psychiatrists, physicians, nurses, occupational and physical therapists, and a variety of other aides. It is obvious that teacher training must include a knowledge of the function of allied disciplines and an ability to interpret information passed on to them directly or through various liaison personnel.

Colleges and boards of education should join to recruit teachers for special education and to exchange ideas that will eliminate some of the gaps between the theoretical and the practical in courses of study. Grants for tuition and living expenses are encouraging people to enter special education and to keep abreast of current trends.

A need for researchers to develop new bodies of knowledge and techniques in improving educational opportunities for handicapped children exists. The classroom can be a proving ground for new ideas, new materials, and practical research. College courses can anticipate and meet the needs for new programs in teacher recruitment and training.

A carefully planned program of in-service training should offer the teacher many meaningful opportunities for professional growth through courses, workshops, conferences, and demonstration lessons. The standards of competency required by teachers in special education is rising. One can hope only that the air of enthusiasm and optimism currently pervading the field will be nurtured and developed by providing more opportunities for professional growth in this remarkably rewarding work of teaching children who are physically limited.

Supplementary Materials

GLOSSARY OF MEDICAL TERMS

ACHONDROPLASIA: (Gk *a*, not; *chondros*, cartilage; *plassein*, to form). A condition of abnormal osteogenesis (bone formation) resulting in the typical congenital dwarf. The pathological process begins early in intrauterine life as disordered chondrification and ossification of the ends of the long bones; there is premature union of the epiphyses. The membraneous bones develop normally. Synonym: chondrodystrophia foetalis.

AMYOTONIA CONGENITA: A form of muscular dystrophy of congenital origin, but neither familial nor hereditary.

ANEMIA, COOLEY'S: Also known as Mediterranean anemia and thalassemia. A chronic hemolytic anemia with erythroblastosis, occurring in Mediterranean families and due to a specific gene influencing hemoglobin production. A serious, debilitating disease.

ANEMIA, SICKLE-CELL: The loss of normal balance between the productive and the destructive blood processes, due to diminution of the normal blood volume or a deficiency in the number of red cells. Clinically, the condition is marked by varying degrees of pallor, dyspnea, and palpitation.

APHASIA: (Gk *a*, not; *phasis*, speech). Loss or impairment of the capacity to use words as symbols of ideas.

APHAXIA: A disorder of the nervous system caused by lesion in the cortical area and association paths of the dominant hemisphere.

ARTHRITIS, RHEUMATOID: A chronic arthritis of unknown etiology; affects multiple joints, producing constitutional effects, such as debility, weakness, loss of weight, and inflammation of a joint. It occurs more commonly in females than in males. It is uncommon in children, but if it is present, it is called Still's disease and any joint can be involved.

ARTHROGRYPOSIS: (Gk *arthron*, joint; *gryposis*, a crooking). 1. Permanent flexure of a joint; ankylosis. 2. Persistent idiopathic contracture of a joint.

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ASTHMA, BRONCHIAL: Characterized by recurrent paroxysms of a wheezing type, due to the narrowing of the lumen (openings) of the smaller bronchi and bronchioles. The chief difficulty is the marked thickening of the walls of the bronchi. Bronchial asthma is usually caused by recurrent attacks of an inherited allergy.

ASTIGMATISM: (Gk *a*, not; *stigma*, mark). The faulty vision which results from irregularity in the curvature of one or more refractive surfaces (cornea, anterior and posterior surfaces of the lens of the eye).

ATHETOSIS (ATHETOID): (Gk *athetos*, without position; *osis*, condition). A condition chiefly affecting children, characterized by recurrent, slow, and continual change in position of the fingers, toes, hands, feet, and other parts of the body; usually the result of a brain lesion.

ATROPHY: (Gk *a* not; *trophe*, nourishment). An acquired reduction in size of an organ or cell which had previously reached mature size. Hypoplastic organs may exhibit atrophy. It may be a phsysiological wasting away, or a pathological process accompanied by some degree of degeneration.

ATROPHY, MUSCULAR: Disease in which muscle becomes atrophic, especially skeletal muscle. Often a part of a disease, such as progressive muscular atrophy, myasthenia gravis, and various forms of myotonia.

CEREBRAL PALSY: (L *cerebrum*, brain; F *paralysie;* Gk *para*, beside; *lya*, loosen). Paralysis or weakness of muscles due to brain damage. Various types include: spastic, athetoid, tremor, rigid, ataxic.

CHOREA: (Gk *choreia*, dance). A nervous disorder characterized by irregular and involuntary actions of the muscles of the extremities and the face; found in many conditions as part of a syndrome. Following infection, it is also a disease entity, and as such is identical with St. Vitus's dance and Sydenham's chorea.

CILIAC DISEASE: (Gk *koilia*, belly). Abdominal or gastro-intestinal disease of infants.

CLEFT PALATE: A congenital defect, due to failure of fusion of embryonic facial processes, resulting in a fissure through the palate. This may be complete, extending through both the hard and the soft palate into the nose, or any degree of incomplete or partial cleft. Often associated with harelip.

COLITIS: (Gk *kolon*, colon; *itis*, inflammation). Inflammation of the colon, the large intestines. *Ulcerated C.* An idiopathic, nonspecific inflammation of the colon; of unknown cause characterized by friability and ulceration of the mucosa.

CONJUNCTIVITIS: (L *conjunctivus*, serving to connect; Gk *itis*, inflammation). Inflammation of the conjunctiva, the mucous membrane covering the anterior portion of the globe of the eye, reflected upon the lids and extending to their free edges.

COXA VARA: (L *varus*, crooked, bent; L *coxa*, hip). Literally, bent hip; a condition in which the neck of the femur is bent downward without actual hip-joint disease, but usually due to rickets. This bending may reach such an extent that the neck forms with the shaft a right angle or less, instead of the normal angle of 120 to 140 degrees.

CYESIS: Pregnancy

CYSTIC FIBROSIS: An hereditary disease of infants and young children characterized by the presence of cysts and excessive fibrous tissue in glandular organs (as in the pancreas and lungs), by excess mucous secretion which causes a blocking of respiratory passages and pancreatic ducts, and by resulting malnutrition, diarrhea, cough, and wheezing respiration. Also called pancreatic fibrosis and mucoviscidosis.

DIABETES: A condition characterized by the habitual discharge of an excessive quantity of urine and by excessive thirst because of the failure of the body to manufacture insulin, a chemical produced in the islets of Langerhans located in the pancreas. Used without qualification, the word refers to diabetes mellitus, the failure of the body tissues to oxidize carbohydrates at a normal rate.

DIPLEGIA: (Gk *di*, two, double; *plege*, stroke). Paralysis of corresponding parts on both sides of the body. In cerebral palsy, known as spastic diplegia.

DYSARTHRIA: (Gk *arthron*, joint; *dys*, bad). Difficulty in the articulation of words, due to disease of the central nervous system; impairment of articulation; stammering.

DYSLALIA: (Gk *dys*, bad; *lalein*, to talk). Impairment of the power of speaking due to a defect in the organs of speech.

DYSTONIA: (Gk *dys*, bad; *tonos*, tone or tension). A rare, progressive disease with a familial incident, affecting children between 8 and 14.

Tonic spasms and clonic contractions occur in large muscles of thigh and leg, and entire muscular system becomes severely affected.

DYSTROPHY, PSEUDOHYPERTROPHIC MUSCULAR: (Gk *dys*, abnormal; *atrophos*, ill fed). A progressive, familial disorder beginning in childhood: characterized by hypertrophy and later atrophy of the muscles with lordosis, weakness, inability to rise from the ground, a waddling gait, and progressive helplessness. One of a number of forms of muscular dystrophy.

ENCEPHALITIS: (Gk *itis*, inflammation; *enkephalos*, brain). An inflammation of the brain which may be a specific disorder or a complication of another disease. According to varying etiology, encephalitis can be classified as actinomycotic, parasitic, trichinotic, etc.

EPILEPSY: (Gk *epilepsia*, seizure or fit). A condition due to brain disorder in which one loses control of his muscles so that they twitch or jerk violently. The seizures may be extremely mild (F *petit mal*, little illness), last only a few moments (like a blackout), and are hardly noticeable; or they may be extremely severe (F *grand mal*, great illness) and cause the victim to lose consciousness, fall to the ground, and go into convulsions (therefore, sometimes called the "falling sickness").

EPIPHYSIS, SLIPPED: (Gk *epi*, upon; *phyo*, grow). Slipping and displacement of upper thigh epiphysis: a portion of bone attached for a time to another bone by cartilage, but becoming consolidated with the principal bone when growth is completed. Particularly applied to the upper end of the femur or thighbone.

EQUINUS TALIPES: (L *talus*, ankle; *pes*, foot; *equinus*, horse). Like a horse's hoof, representing a tiptoe position. A condition in which the heel is elevated and the weight is thrown upon the anterior portion of the foot in standing and walking.

EQUINUS VARUS: (L *equinus*, horse; *varus*, bent). Like a horse's hoof. A deformity of the foot, characterized by fixed plantar (sole) flexing and turning inward.

ERB'S PALSY: Partial paralysis of the brachial (arm) flexes due to laceration at birth. Named after the famous pioneer in electrotherapy, William Heinrich Erb.

ERYTHROBLASTOSIS: A hemolytic anemia of the newborn characterized by icterus (jaundice) and an increased number of nucleated red blood

cells. Occurs when an Rh negative mother develops antibodies against the fetus, which is Rh positive.

EWING'S TUMOR OR SARCOMA: (Gk *sarkoma*, a fleshy excrescence). A malignant tumor composed of cells derived from nonepithelial tissues, mainly connective tissue. May be divided into fibro-sarcoma, chondrosarcoma, etc. Named after the American pathologist, James Ewing.

EXOTROPIA: (Gk *tropein*, outward, to turn). An eye defect occurring when one eye fixes upon an object and the other eye deviates outward. Also called divergent concomitant strabismus. The squinting eye is turned to the temporal side of the head. See strabismus.

GAUCHER'S DISEASE: A rare familial disease beginning in infancy and running a chronic course; it is characterized by enlargement of the spleen, anemia, bronzing of the skin, and thickening of the conjunctiva. Named after Philippe Charles Ernest Gaucher.

GLAUCOMA: (Gk *klaukos*, gleaming, gray). A disease of the eye marked by increased pressure within the eyeball that damages the optic disk and results in gradual loss of vision and ultimate blindness.

HEMIPLEGIA: (Gk *hemi*, half; *plege*, a stroke). Paralysis of one side of the body, including both extremities. Spastic hemiplegia, a form of paralysis as in cerebral palsy, characterized by rigidity of the affected extremities.

HEMOPHILIA: (Gk *haima*, blood; *philos*, love). A sex-linked, hereditary disease occurring only in males but transmitted by females, characterized by impaired power of blood coagulation, due to the deficiency of effective thromboplatinogen. Victims of this malady, called bleeders, must be careful about the slightest injury to avoid dangerous hemorrhage.

HEPATITIS, INFECTIOUS: (Gk *hepas*, liver). A form of jaundice, a condition characterized by a yellowish discoloration of the skin and of the whites of the eyes, occurring while bile enters the bloodstream. Common in recent years; affecting children and adults. Caused by a virus, it is a serious debilitating condition, requiring long and painstaking treatment by a physician.

HODGKIN'S DISEASE: Also called lymphoma. A group of malignant or premalignant conditions of lymphoid tissue in which aplenomegaly (enlargement of the spleen) and lymphadenopathy (disease of lymph

nodes) usually are present. Named after the English physician, Thomas Hodgkin.

HYDROCEPHALUS: (Gk *hyd*, water; *kephale*, head). An abnormal increase in the volume of cerebrospinal fluid within the skull, leading to distention of the ventricles of the brain before the sutures of the infant's skull are closed, thus causing enlargement of the skull and damage to the functions of the brain.

HYPOSPADIAS: (Gk *hype*, under; *spadon*, eunuch; *span*, to tear, pluck off). A congenital anomaly of the penis and urethra in which the urethra opens upon the ventral surface of the penis or in the perineum. Also used to denote a congenital malformation in which the urethra opens into the vagina.

ILEITIS, REGIONAL: A chronic, nonspecific granulomatous process frequently involving the terminal portion of the ileum (small intestine, exclusive of the duodenum), but occasionally extending into the colon or arising in the proximal portions of the ileum. Also called terminal ileitis.

KYPHOSIS: (Gk *kyphos*, humpbacked, bent). Angular curvature of the spine; the convexity of the curve being posterior, usually situated in the thoracic region, and involving few or many vertebrae; the result of such diseases as tuberculosis of the spine, osteoarthritis, or rheumatoid arthritis of the spine, or of an improper posture habit.

LEUKEMIA: (Gk *leukos*, white; *haima*, blood). A disease of the blood-forming organs characterized by uncontrolled proliferation of the leucocytes (white blood cells). The disease is marked by persistent leucocytes (Gk *kytos*, cell), associated with changes in the spleen and bone marrow.

LITTLE'S DISEASE: Spastic spinal paralysis in infants. Named for the English surgeon, William J. Little.

LORDOSIS: (Gk *lordos*, bent backward). A forward curvature of the spine; opposite of kyphosis.

LUPUS ERYTHEMATOSUS: (L *lupus*, wolf). A chronic tuberculous disease of the skin and mucous membranes, characterized by the formation of nodules of granulation tissue; usually a chronic, but occasionally acute, disease of the skin characterized by red, scaly patches of various sizes and configurations which induce atrophy and superficial scar formations. A capricious disease, the acute form is often fatal. The chronic forms cause follicular plugging and occur in the

exposed areas as the face, scalp, and hands. It is not caused by the tubercle bacillus. It is divided into the following forms: chronic discoid, subacute, acute varieties. The latter may be a different disease.

MARIE CHARCOT'S: The peroneal type of progressive neuropathic muscular atrophy. Also called Charcot-Marie-Tooth disease or type. Named for J. M. Charcot and Pierre Marie, French neurologists, and Howard Henry Tooth, British neurologist.

MÉNIÈRE'S SYNDROME: Auditory vertigo. A disease of the middle ear characterized by deafness, vertigo, and tinnitus (L, a subjective ringing, roaring, or hissing sound in the ears); it is frequently accompanied by nausea, vomiting, and nystagmus (an involuntary oscillatory movement of the eyeballs). Named after Emile A. Ménière, 19th century French physician.

MESOTHELIAL PYELITIS: (Gk *meso*, mid; *thele*, nipple; *pyelos*, trough; *itis*, inflammation). Inflammation of the lining of the wall of the pelvis of the kidney.

MICROCEPHALUS: (Gk *mikros; kephale*, head). An individual with an unusually small head and brain.

MONONUCLEOSIS, INFECTIOUS: (Gk *monos*, one; *nukleos*, nut; *osis*, condition). A communicable disease of unknown etiology, with fever, sore throat, generalized swollen lymph nodes, especially those of the posterior cervical area, and an increase in abnormal mononuclear cells. There may be a rubelliform eruption and enlargement of the spleen. Also called Pfeiffer's disease, glandular fever.

MUSCULAR DYSTROPHY: See dystrophy.

MYASTHENIA, GRAVIS: A disease characterized by an abnormal exhaustibility of the voluntary muscles, manifesting itself in a rapid dissemination of contractility, both when the muscle is activated by the will and when stimulated by electric current. It may be associated with overactivity of the lymphatic tissues of the thymus.

MYELITIS: (Gk *myelon*, marrow, specifically, the spinal cord). Inflammation of the bone marrow of the spinal cord. Transverse myelitis inflammation extending across the spinal cord at a specific level.

MYOPIA: (Gk *myops*, closing or contracting the eyes). Nearsightedness; an optical defect, usually due to too great length of the antero-posterior diameter of the globe of the eye, whereby the focal image is formed in front of the retina instead of on its surface.

NARCOLEPSY: (Gk *narke*, numbness, torpor; *lepsie*, seizure). An uncontrollable tendency to attacks of deep sleep of short duration. Has been observed in epilepsy, encephalitis, and in tumors of the third ventricle and hypothalamus.

NEPHRITIS: (Gk *nephros*, kidney). Inflammation of the kidney. If the inflammation is primarily of the glomeruli (a tuft of capillary loops projecting into the lumen of a renal corpuscle), the disease is called glomerulo-nephritis. An infection ascending to the kidney from the ureter is called pyelonephritis.

NEPHROSIS: Any degeneration of the kidney without signs of inflammation.

NEUROLOGICAL: (Gk and L *neuron*, nerve; *ologia*, speak, gather). Of or pertaining to the branch of science dealing with the nervous system and its diseases.

OBESITY: (L *obesitas*, fatness). A condition in which excessive fat is stored in the body, due to a positive energy balance.

OSGOOD-SCHLATTER DISEASE: Tibial tuberosity lesions occurring in adolescents; called osteochrondritis of tuberosity of tibia. An oblong elevation on the anterior surface of the upper extremity of the tibia to which the patellar tendon (of the knee-cap) is attached. (Osgood introduced for this painful condition his operation for the relief of so-called "tennis elbow," in which he incised from the epicondyle downward and exposed and excised the bursa.)

OSTEOGENESIS IMPERFECTA: (Gk *osteo*, bone; *genesis*, origin). Imperfect development, histogenesis, and ossification of bony tissue. Fragilitas ossium (L fragility or brittleness of the bones). A familial disease of the long bones, characterized by abnormal brittleness and associated with blue scleras. Also called Addowe's disease and Lobstein's disease.

OSTEOMYELITIS: (Gk *myelos*, marrow). Inflammation of the marrow of the bone.

OSTEOSCLEROSIS: (Gk *sklerosis*, condition of hardening). Condensation in band form of bone at the epiphyseal end of long bones and in the periphery of small bones. Also called Albers-Schoenberg disease or marble bones.

OTITIS MEDIA: (Gk *otis*, ear; *itis*, inflammation). Inflammation of the middle ear.

PARAPLEGIA: (Gk *para; plege,* stroke). Paralysis of lower extremities.

PARESIS: (Gk *parienai,* a letting go). A slight paralysis; incomplete loss of muscular power; weakness of a limb. Also in psychiatry, a progressive degeneration or "softening" of the brain, an end result of syphilis.

PERTHE'S DISEASE: Inflammation of bone and cartilage around head of femur, seen especially in children. Named for the German surgeon, George Clemens Perthes. Also called Legg-Calve-Perthe's disease, osteochondritis deformans juvenile, or coxaplana.

PES PLANUS: Flat foot

POLIOMYELITIS: (Gk *polios,* gray; *myelos,* muscle; *itis,* inflammation). An inflammation of the gray matter of the spinal cord, or the medulla, or sometimes both.

POTT'S DISEASE: Tuberculosis of the spine. Spinal curvature, humpback, or kyphosis resulting from tuberculosis. Named for the English surgeon, Percival Potts.

RHEUMATIC FEVER: A febrile disease characterized by painful migratory arthritis and a predilection towards heart damage, leading to valvular disease. Permanent joint damage never occurs.

RIGIDITIES: (L *rigere,* to be stiff). Stiffness, inflexibility, immobility; tonic contraction of muscles. Chiefly such rigidity that is abnormal in extent or degree and is due to disease.

RUBELLA: (L *rubellus,* reddish). German measles. An acute, contagious, eruptive disease of short duration and mild character. Can cause organic damage to the fetus in early pregnancy.

SARCOMA: (Gk *sarx,* flesh; *oma,* tumor). A tumor, or group of tumors, generally malignant, composed of quasi-connective tissue in which the cell elements predominate. See Ewing's tumor.

SCLEROSIS: (Gk *sklerosis,* hardened condition). Hardening, especially of a part by an overgrowth of fibrous tissue. Applied particularly to hardening of the nervous system from atrophy or degeneration of the nerve elements; also to a thickening of the coats of arteries.

SCOLIOSIS: (Gk *skolios,* curved). Lateral curvature of the spine; named according to location and direction of the convexity as right thoracic scoliosis, etc. Usually there are two curves, the original curvature and a compensatory curvature.

SPASTIC: (Gk *spastikos*, drawing in). Pertaining to or characterized by spasm. Sometimes used as a synonym for cerebral palsy.

SPASTIC DIPLEGIA: See diplegia.

SPASTIC HEMIPLEGIA: Spastic paralysis of one side of the body. A form characterized by rigidity of the affected extremities, upper and lower.

SPASTIC PARAPLEGIA: Spastic paralysis of both lower extremities, and also more or less of the trunk. Increased muscular tone and hyperactive tendon reflexes, diseases involving the pyramidal tracts of the spinal cord.

SPASTIC QUADRIPLEGIA: Spastic paralysis affecting all four extremities of the body.

SPINA BIFIDA: (L *bifida*, forked, split, two-cleft; *spina*, spine). A congenital defect in the closure of the walls of the spinal canal with hernial protrusions of the membranes of the spinal chord, caused by the want of union between the laminae of the vertebrae.

SPONDYLOLISTHESIS: (Gk *spondylos*, vertebra; *olisthesis*, a slipping or falling). A deformity of the spinal column produced by the gliding forward of the lumbar vertebrae in such a manner that they overhang the brim and obstruct the inlet of the pelvis.

STILL'S DISEASE: A particular form of joint disease, associated with glandular and splenic enlargement, occurring in infants and in young children. It is accompanied by profuse sweating, a mild fever of intermittent type, and occasionally prominence of the eyes. Retarded development is a feature of sufferers from the disease.

STRABISMUS: (Gk *strabismus*, squinting). That abnormality of the eyes in which the visual axis do not meet at the desired objective point. A constant lack of parallelism of the visual axis of the eyes. See exotropia.

SYNOVITIS: (Gk *syn*, together; *oon*, egg). Inflammation of synovial membrane, a membrane which secretes a thick, viscid, yellowish-white synovial fluid, albuminous and resembling the white of an egg in appearance, for the purpose of lubricating the interiors of the various joints, as well as other points where lubrication is necessary. The synovial membrane is contained in joint cavities, bursae, and tendon sheaths.

TALIPES: (L *talus*, ankle; *pes*, foot). Clubfoot. See equinus talipes.

TORTICOLLIS: (L *tortus*, twisted; *collum*, neck). Wryneck, a spasmatic condition of the muscles of the neck resulting in an abnormal position of the head.

TRACHOMA: (Gk *trachus*, rough, harsh). A chronic, contagious inflammation of the inner mucous lining of the eyelids. It is marked by the formation of minute grayish or yellowish translucent granules of adenoid tissue.

TREMORS: (L *tremere*, to shake). A trembling of the voluntary muscles; involuntary rhythmic movements involving the entire muscle, or only a circumscribed group of muscle bundles.

ULCER, DUODENAL: (L *duodeni*, twelve each from its length, about twelve fingers' breadth; L *ulcus*, sore). A chronic ulcer, usually in the anterior wall of the duodenum, the part of the small intestine next below the stomach, beginning at the pylorus.

ULCER, GASTRIC: (Gk *gaster*, stomach). A chronic ulcer in the wall of the stomach.

URTICARIA: (L *urtica*, nettle). Hives or nettle rash. Elevated white centers and a surrounding area of erythema. Tend to disappear in a day or two.

WILSON'S DISEASE OR HEPATOLENTICULAR DEGENERATION: (Gk *hepar*, liver; L *lenticula*, freckly eruption). An affliction marked by muscular tremors, weakness, loss of weight, cirrhosis of the liver, mental deterioration, and sometimes corneal pigmentation. The outstanding clinical features are widespread muscular rigidity and tremor. Named for Samuel Kinnier Wilson, a 20th century American neurologist in England.

GUIDE TO COMMUNICABLE DISEASES

Infectious Hepatitis

Also known as jaundice or yellow jaundice, it is an infectious disease of the liver, usually mild in children and severe in adults. It was once considered rarely fatal, but recent reports in connection with drug addiction indicate grave consequences.

It begins with fever, loss of appetite, and general discomfort. In this respect, it is similar to many other diseases. The diagnosis becomes evident only when jaundice (yellow color of eyes and skin) appears 4 or 5 days later.

An average of 3 weeks (10-40 days) may pass before an infected person shows hepatitis symptoms. The virus which causes the disease is present in the stools of patients from a few days before to about 7 days after the manifestation of the illness, sometimes much longer. When the fever subsides, the danger of infecting others probably declines.

One becomes infected by swallowing the virus which is carried by dirty hands from the stools of infected persons to the mouths of others. Hands become soiled after bowel movements or by contact with articles close to the body of patients, such as bedding and undergarments; also, to a lesser degree, by other articles in the patient's room and toilet. Any food or drink handled by unclean hands may become contaminated and infect others. Doctors call infectious hepatitis a stool-to-mouth-transmission disease.

Talking to a patient or to members of the household does not represent any danger, but if one is in close contact with the patient or with his laundry, it is most important to wash the hands thoroughly, especially after bowel movements and before preparing any food. Infectious hepatitis is rarely spread in families with clean habits. Because of the increased possibility of becoming infected, however, family members should receive an injection of gamma globulin. Gamma globulin often does not prevent the disease, but makes it very mild, so much so that it is not recognized as infectious hepatitis. The best protection still is cleanliness. One who has had infectious hepatitis very rarely has a second attack.

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[1] Fodor Tibor, M.D., *A Guide for Department of Social Services Personnel on Certain Communicable Diseases* (New York: Department of Health).

Diarrhea

Salmonella, Shigella, and some viruses cause diarrhea. These germs, frequently involved in food poisonings, cause discomfort, but the disease is rarely serious, except in infants who may have a violent case. The infection may be mild enough to resemble an upset stomach; however, there may be high fever, and medical attention may be necessary.

When a person has diarrhea, a germ is probably in the stools. From the stools, the disease can be transmitted as described in the section on hepatitis (stool-to-mouth transmission). Consequently, a patient should not handle food. A person may become infected without becoming ill. Such a person is called a carrier. He may give the disease to others.

Precautions are the same as in every stool-to-mouth transmitted disease: PROPER HAND-WASHING HABITS. In addition, food must be thoroughly cooked and refrigerated soon afterward. Cooking kills germs; room temperature permits germs to multiply.

Influenza

Influenza is an acute infection which begins with fever, chills, and generalized aches. Running nose, sore throat, and cough are often present. Occasionally, the disease may be mild and resemble a cold. It is common practice to say that we have the flu or influenza when we really have one of the many kinds of respiratory infections. When it is important to differentiate between influenza and other infections resembling influenza, laboratory examinations can be done.

Healthy children and adults recover from the disease in a few days. In some patients, fatigue will persist for weeks. Elderly persons and those with chronic heart or lung disease, diabetes, or some other serious chronic ailment may have complications which may end fatally.

The virus is present in the nose and throat of patients suffering from influenza and is passed on to others through coughing, sneezing, or even talking. During these activities, small droplets are thrown into the air which, when inhaled, cause infection; thus, it is known as a droplet infection. These droplets travel only a few feet, but as they dry out, they become smaller and lighter and may be carried around by air currents. When air currents carry the virus further away, it is called airborne infection.

Protection involves staying out of the patient's room. It is impossible to keep away from airborne infection and from sick people who travel in

crowded subways. Therefore, those persons who may have a more serious form of influenza should be immunized yearly. The vaccine will not protect them against colds but will give good protection against influenza.

Meningitis

This is an infection of the membranes which surround the brain and spinal cord.

Spinal Meningitis

It occurs almost exclusively in children, from a few months to five years of age. The symptoms are fever, headache, vomiting, and sometimes convulsions. While these symptoms do not necessarily establish the diagnosis, any child with fever, headache, and vomiting should be promptly seen by a physician. Infants who are a few months old may have no other symptoms than fever and convulsions. They too should be seen immediately by a physician.

The germ meningococcus is found in the throat of patients and may be present quite often in the throats of healthy persons who may be carriers. The germ leaves the throat in droplets, traveling a few feet but not a long distance. Outside the body it dies rapidly so that there is no real danger of carrying it home. Once the disease is treated, it usually becomes noninfectious within 24 hours.

The time from infection to disease, called incubation time, is 3 to 5 days. Therefore, even in doubtful instances, there is no reason for concern if a person remains well 6 days after exposure. Children exposed *in the same* household should either be carefully observed for 6 days or given preventive medication, depending on a physician's recommendation.

Other Types

Spinal meningitis is treated separately because it causes great anxiety. There are, however many other germs that many cause meningitis, some of them viruses. It usually takes time even for a physician to determine which of these is responsible for the disease. Only then is it possible to say whether it is serious or not. These germs spread either from the throat or from the stools, sometimes from both. Adults rarely contract the disease from one another or from children even if the contact is very close; to be doubly sure, however, it is wise to avoid close contact and practice good hand-washing habits.

When infants and children have been exposed, they should be carefully watched and seen by a physician if any signs of disease develop.

Whooping Cough

Vaccination has considerably reduced the number of patients with this disease, but has not eliminated it completely. Whooping cough can be dangerous to infants under one year of age and can have serious complications up to about the age of three. In older children and in adults, it is more often an inconvenience. The germ, whose incubation time is from 7-10 days, is present in the nose and throat of infected persons and spreads by droplets or by articles freshly contaminated. Infants must be vaccinated early. If a nonvaccinated child under three is exposed, gamma globulin — special for whooping cough — should be administered. This is not recommended for children over three or for adults.

The disease is communicable before the onset of symptoms and for probably as long as 3 weeks after. Although the disease is not more than an inconvenience to adults, it is always good practice to avoid persons coughing on you directly.

Mononucleosis

Also called infectious mononucleosis, it is an acute disease accompanied by fever and sore throat. In children, the disease is generally mild, while among young adults it may be long lasting.

The cause is unknown. Though the germ is probably present in the throat, it does not spread easily from person to person. Even intimate contact such as kissing is not followed by transmission of the disease. For this reason, patients who are in a hospital with mononucleosis are not isolated. Outbreaks occur almost invariably where large numbers of young adults live in close and continuous contact as in military barracks and dormitories.

Measles, Mumps, Chicken Pox

These diseases are well known and need no description.

MEASLES germs spread through the saliva and the nose secretions of sick persons. Transmitted by droplets directly or airborne, this disease may have serious complications in children under three. Vaccination protects against the disease. Gamma globulin injection is recommended for the protection of nonvaccinated children under 3 who have been directly exposed to a sick person. The incubation time is 10 days, and the disease is communicable from 2-4 days before the rash appears to 2-5 days afterwards, a total of about 9 days. If you have never had measles, keep out of

the patient's room. About one week after vaccination, rash and fever sometimes occur. This is a vaccination reaction, not serious and not infectious.

MUMPS is more unpleasant than serious. In one-third of adolescent males who contract mumps, the testicles become involved, and a remote possibility of sterility exists.

The virus of mumps is in the saliva a few days before the disease is apparent. The incubation time is about two to four weeks. A vaccine has recently been developed, and as with almost all other vaccines, it must be used before exposure. After exposure, the vaccine has no value. The disease is communicable until all swelling disappears. If you have never had mumps, keep out of the patient's room.

CHICKEN POX, a disease which spreads through the air with great ease, is highly communicable. It is a mild disease in childhood but can be very serious in adults. It usually leaves a lasting immunity (ability to resist infection). There is no way of preventing the disease except by avoiding households with chicken pox. The disease is communicable for 6 days after the first crop of blisters appears. The incubation time is from two to three weeks.

DEFINITIONS OF SPECIAL TERMS USED

Carrier:	One who is infected without being ill.
Communicable disease:	The spreading of a disease from one person to another, directly or indirectly. (A sick person does not pass on the disease throughout his illness, but usually only at the beginning, and for a period which is variable according to the disease.)
Contact:	One who has been exposed to a person with a communicable disease.
Contaminated:	Any article, food, or clothing on which disease-causing germs have been deposited.
Immunity:	Ability to resist infection.
Incubation time:	The time from contact with a sick person to the first symptoms.
Susceptibility:	Lack of resistance to a specific disease.

GUIDE TO SERVICES FOR HEALTH CONSERVATION CLASSES

Type of Class	Referral Criteria	Admission Procedure	Transfer Procedure	General Features
Orthopedic Units (HC 20)	Conditions such as cerebral palsy, muscular dystrophy, spina bifida. Must be seriously disabled. Grades K-8.	Treatment agency sends Form 012S (obtainable from school nurse or BEPH) to Bur. for Handicapped Children, 350 Broadway, NYC. Screening team reviews.	Treatment agency and screening team at unit concur. Form 012S approved by Department of Health physician.	Can accommodate children in wheelchairs. Use of hydraulic-lift bus where necessary. Many special adaptations in program; therapies offered.
Health Conservation—Bus	Conditions such as cardiac disability, rheumatic fever, orthopedic disabilities. Grades 1-12.	Treatment agency fills out medical form (obtainable from school nurse or BEPH). School physician and BEPH review.	Same as admission procedure.	Children must be sufficiently ill to warrant bus transportation if school is not within easy walking distance of home.
Lowered Vitality (Health Conservation—without bus)	Conditions such as malnutrition, diabetes, allergy, asthma, orthopedic disabilities; need for rest periods. Grades 1-6.	Recommendation by school physician or by outside source approved by school physician and BEPH.	Same as admission procedure.	Children must be able to walk to school and climb stairs.
Brain-Injured (HC 30)	Certified brain-injured, perceptually impaired, not seriously motor handicapped, not severely emotionally disturbed, not retarded. Grades K-12.	Referral agency furnishes recent reports on neurological, psychological, psychiatric, and pediatric findings. Screening team reviews.	Treatment agency may recommend transfer. Screening team reviews, approves, or initiates transfer recommendations.	Bus transportation available as required. Children must be able to climb stairs.

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GUIDE TO SERVICES FOR HOME INSTRUCTION CLASSES

Type of Disability	Referral Criteria	Admission Procedure (Grades 1-12)	Transfer Procedure	General Features
Orthopedic	Conditions such as cerebral palsy, muscular dystrophy, scoliosis, leg fractures; minimum home stay, six weeks.	Treatment agency fills out 012S (obtainable from school nurse or BEPH). Dept. of Health physician and BEPH review.	Same as admission procedure.	Diseases must be noncommunicable. Child must be disabled to the extent that he cannot attend regular or special classes with reasonable regularity. Responsible adult chaperon must be at home. Intellectual capacity must be minimally in the educable retarded range.
Cardiac and Rheumatic Fever	Cardiac diseases, post-operative, rheumatic fever; minimum home stay, six weeks.	Treatment agency fills out C12S (from school nurse or BEPH). School and BEPH review.	Same as admission procedure.	
Chronic	Conditions such as asthma, colitis, epilepsy (active seizures), nephritis; minimum home stay, six weeks.	Treatment agency sends letter for school doctor's approval. Forwarded to BEPH for review and assignment.	Treatment agency fills out BEPH Form M7. School doctor approves and sends it to BEPH.	
Emotionally Disturbed	All types except where there is predictable, strong negative reaction to program.	Treatment agency sends therapist's recommendation to BCG and BEPH for review. BCG also initiates referrals.	Treatment agency makes recommendation signed by therapist and sends it directly to BEPH.	
Cyesis	Students either reside in shelter or are under outpatient treatment with instruction at shelter.	Director of shelter sends admission forms to BEPH and Bureau of Attendance.	Director of shelter sends transfer form to BEPH HS placement or district guidance coordinator.	Students accepted at any stage of pregnancy after referral by shelter personnel.

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American Journal of Mental Deficiency. American Association on Mental Deficiency.

Exceptional Children. Council for Exceptional Children.

Curriculum bulletins of the New York City Board of Education.

Journal of Pediatrics.

Journal of Learning Disabilities.

Rehabilitation Literature. National Society of Crippled Children and Adults.

Children. U.S. Department of Health, Education, and Welfare, Children's Bureau.